



Choosing a printer is a lot easier than choosing a computer.

THERE are dozens of quality printers from which to choose. With quality price tags of around £250. The Brother M-1009, however, breaks all the rules.

Stays defiantly below the 2200 harrier.
Though it has far more than its far share of features, it maintains

Though it has far more than its fair share of features, it maintain the extraordinantly low price of £199.95.

Travels at a steady faity.

In the speed stakes, the M-1009 is certainly no slouch, being fully capable of up to 50 characters per second.

Providing bi-directsonal and logic seeking printing for normal

characters and uns-directional printing for super and sub-script and graphics.

Prints on any paper.

Being an impact uninter the M-1009 will print on virtually

Being an impact printer, the M-1009 will print on virtually any paper, including letter headings, invoices and standard office

It will even print two copies together with your original.

A superb character recommendation.

In its price range, the M-I009 has a great deal more character than many printers.

96 no less, plus international type and graphic characters.

Reliability comes as standard.

Built to the same exacting standards as Brother's elite office.

printers, the Brother M-1009 already has faultless credentials for reliability.

Its 9 ptn dot matrix head, for example, has an astonishing 20 million character service life.

One printer that doesn't block out the light.

Many home computers tend to be a little on the large side.

In contrast, the compact M-1009, at only 7 cm high, keeps a

discreet profile.

Well designed, reliable – and conscientious.

The Brother M-1009.



The future at your fingertips.

DAPT P INOTHER OFFICE EQUIPMENT DIVISION JONES + INOTHER, SHEMAY STREET, GUIDE INDOE, RUDENNAMM MANDERSTRAMIS (ID. 1)D. TEL. ON 130 6/31 (90 CIN-SY) ON 330 ON IN A LINES) ON 130 FOR IN LINES) TELEX. 66-0/92 INOTHER YOURS TRUST JAMTED IN MOOTH, JAMEN

BOOTS, WILDINGS SPECTRUM, JOHN MENZIEN, MICRO MANAGEA

Make new friends,



Like Dr. Frankenstein, you can now creats your very own monsters and aliens. As well as friends and heroes to defeat them.

You can also invent your own games.
As simple or as complex as you care to make them. The only real limit is your imagination.

GAMES CREATOR

For the UBMAS, the Garnes Creator comes with a step-by-step manual and three ready-to-play games. Each demonstrates some of the program's exceptional leatures; shapes, movement, speed, scholing backgrounds, scoring, mass, sound effects and many more.

And you don't have to know any program language to work it' There's only one thing better than playing games And that's inventing them £12.95



and enemies.



GO-SPRITE

A versable easy to use spirite designer and tester which makes hid use of the facilities on the Commodore 64 Co-Spirite gives you.

• ease of use with conditiven commands.

simple animation of 32 sprites, with 256 frames
 easy handling of multi-coloured sprites
 overlaps of up to seven layers

User-Inendly Go-Sorde can be operated almost entirely by joystok alone Lightpen and keyboard control options also included. Speedy



SOFTWARE FOR ALL THE FAMILY

Available from Boots W.H. Smith Spectrum and all
good software stockests Write for a free catalogue to



ASSEMBLER-DISASSEMBLER FOR YOUR CBM 64

FASSEM 64 is the fastest machine language assembler of it's kind available

FACILITIES: • Assemble • Disassemble • Disk Commands O Mixed number bases (Hex, Decimal and Binary - and conversions between them)

OUser "helpful" utilities (including

Renumber, Auto, Delete)

THE FAST ONE

21/2 times faster than it's nearest rival.

CASSETTE *£14.95

* Also available on disk or cartridge please phone your order direct to:

BUSINESS & TECHNOLOGY CENTRE BESSEMER DRIVE STEVENAGE HERTS SG1 2DX PHONE (0438) 316561

(INTERPOD)

Now the VIC 20 and 64 can communicate with PET peripherals



VIC and 64 users

Would you like to be able to access any of these

- ½ megabyte disks (Commodore 4040 drive)
- 1 megabyte disks (Commodore 8050 drive)
 0 megabyte disks (Commodore 9050 hard disk)
- To megacyte disas (Commodore statu nard disk)
 Printers including a wide range of inexpensive
- IEEE and RS232 matrix and quality printers

 IEEE instruments such as volt meters, plotters etc.
- Now you are no longer limited by the VIC or the 64's serial bus. Simply by attaching INTERPOD you can vastly increase the power of your VIC20 and when used with the new 64, INTERPOD turns the computer into a neally nowerful system.

With INTERPOD the VIC and 64 become capable of running really professional quality software such as Word-processing. Accounting, Instrument control and than more.

INTERPOD will work with any software. No extra commands are required and INTERPOD does no

Using INTERPOD is as easy as this:

Simply plug INTERPOD into the senal port of your computer, power-up and you are ready to communicate with any number of parallel and serial IEEE devices and any RS232 printer

Simply incredible et and Packing Delivery normally 14 deys. Export and a strategy of the strat



Marketing

Cheetah Marketing Ltd, 24 Ray Street, London EC1R 3DJ. Tel. 01 833 4909 Telev: 8954958

outent 1

The latest news and weres to keep you in souch with what a happening in the world of Commodore





Ankh Competition

Win the thinking-person's game 25 copies of Ankh, the usume abstract computer puzzle must be won us our absorbing



65 Commodore watcher Dan Gutman, files another report Trus month he looks at some new software about frogs - Progger was never like this



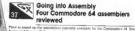


Whichnet? Micronet 800 and Compunet which one to choose?

The Commodere 54 or probably the only home computer to have a choice of two The Collections of a probability use only nome composes in nave a choice or ever commissionations setworks. Both Compared and Microsost 100 are posting for position to get you hooked into the outside world. Which one should you choose?

Good vibes from SID How to get a 'vibrato' effect

This mosts, Tow Jeffnes has been teaching Sydney Sawjooth and the rest of the band how to program the vibrato effect you get from municial trecruments and waleto pourery empers



Going into Assembly Four Commodore 64 assemblers reviewed

Editor Deputy Editor Staff Writer Design/Productio Contributors

Advertising Manager

N describer Executive

Advertisament copy control

Eugene Laces Bohdan Sucrak Mike Pattenden Lyerda Skerry Chris Durham John Bazalay Dan Guttran Fred Read Tom leftnes

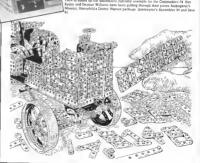
Julie Madocan

luha West ephase Collans Ris Levro

Publisher Registered Offices ory Court. 30-32 Farringdon Lane London ECIR JAU

1904 An EMAP Publication

9 01-251 fi222 0732 381215



Top of the Form

Educational software for youngsters





No Dice - boord games for the 64

If the latest arcade and advectors games can't dispel your located pleased to know that a range of board-game software is available for the 64 has in it

Charts

The ups and downs and ins and outs of the 64 software world



Screen Scene





This month's offecings include a music program for the 64. Ureke for the Vic., and a whole let more



Book laak This month our regular book page looks at books on the 1541 disk

User-Friendty Design Chine Preston concludes his series on better programming



STAB in the back far Basic Intraducing the STAB language

Professor Andrew Collin of Tainet Computer Systems unout the STAB language has company upon to wron programs for the Commodern 64 Both compiled and interpreted, it offers a lot more than Bacon

DIY Forth

Another installment of Richard Hent's embeltioning Forth swo



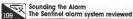


Adventuring into the Valley This month our regular adventure boffin John Razzley takes an en

depth look at the game that a making all the noise - Domarks a

Dottas an business

lake most people. Karl Dallas simply loathes done his account But he reckens an accounts package for his Commodore 64 might do the trick. So he a looked at programs from Genius and Dialog to see if they will solve his (and your) problems



Rested from his Home Control sense Chris Dutham looks at a commercially available alarm system controlled by a Commodors 64



Last but not least, Tommy facilifully answers your computing





Commodore Corner

Commodore big-ways must be glowing with pinds and jour (rather like a Mer World or European Song Contest winner) because their very own pride and joy, the Commodore 64, has sust been voted Home Commune of the Year for the second year running. Voted by whom, you mar nele2

judging was done by seven international comput magazines, from the UK Germany, Italy Prance the Netherlands and the USA None of them, by the way were Commodore 'dedicated magazines. That spurred. Commodore on to make the claim that the 64 is currently the best-selling home computer in the world - a true race to mehee

Meanwhile, Commodore's latest machine the Plus/4, is in for some heavy promotion. Computer hardware retailers the Spectrum Group has organised a competition in conjunction with Commodore to promote what's intended to be the 64 s big brother

What do you do? Well, nucl pick up a leaflet from any Spectrum store and easer the nor very original competition to place six of the Plus/6's attributes in order of ment Funnily enough its built in software (the facility most people thought Commodore was plugging) doesn't even get a

The winner (and three friends) ets a seven night holiday in Florida, squeezing in Disney World and the Kennedy Space Centre You'll also get a holdall full of money (£2,500) to spend Ten runners up get £100 grft vouchers. Funny, nobody wirs a Plus/4? You'll have to hurry, though, closurg date to December 3let

New Year's games

64 owners are in for the cream of the new games launches for Christmas and the New Year Gone are the days when a tor-

name appeared on the Spectrum first and was converted to the Commodoze months later With the latest market research from Gallup showing Commodore neck and neck with Sinclair in terms of micros sold.

many of the software houses are launching their products amultaneously for both systems Commodore owners are

further unveloced in that they can new racing car game from Cosmi excellent Commodore software being imported from America by the likes of US Gold, Statesoft.

Anolasoft and Beyond Most exciting of the games in the US pipeline is Conas from Datasoft. The game is officially hoensed from Lucas films and will challenge the muscle-bound star of comics and films to fight his way through seven

progressively difficult games Action takes place in a castle chamber where flame monsters and flying dragons must be slain

by Cottan with his mighty sword. if he is to win immortably Beating Conan in to the shops will be another hero of the ber screen - Indiana Jones protaggent of Raiders of the Low Ark, and Indiana Jones in the

Temple of Doom Indy's game is not based on any one of the films in particular but features a number of swashbucking challenges typical of the screen adventures. There is an added challenge in Indiana Jones as the player has to work out what the obsective of the game is as there are no specific

Indiana Iones and Conan will be the first launches in a new series of imports from TIS Cold entitled Famous Names The games will be in the normal IRS Gold price range - £9 96 for cassette and between £12.95 and

£14 95 for disk Conun is not expected to be in the shops until late lanuary Other titles appearing on the Famous Names label will be a

More muscle for your 64

that US Cold are hoping will be endorsed by Nicki Landa Stantman Loc Majors ramps

into the pocture with the lates game from Elste - based on the TV show the Fall Guy The player can take part in a number of dangerous stants including trup-walking and being whisked off the top of a burning skyscrapes by helicoptes

Spectrum game kings Threads are launching their fire Commodore game for Christman with Jet Pac - a game that challenges you to assemble a rocket, feel st. and blast off to another planet Also hoping to according to Androgeno double the revenue from their Spectrum atles with Commodore conversions are Reyond Software who will launch Lords of Midnight and Doomdark's

Ravenge for the 64 m the New Mosasc are attacking the Christmas market with three new game book adventures. The Saga of Erik the Viking, The Norsad of Time, and The Stainless Steel Rat Saves the World get the computer game

Still no sign of the Greet Space Race from Legend, the long awasted sequel to Valhalia. This one could still just steal the show before Christmus although it will be hard pressed by Ariolasoft who are launching the entry Electronics Arts range at UK DECAS

One thing is certain -Commodore owners with a bit of Spare cash to spend on software in the New Year will have dozens of good games to choose from

Freddie and Alice on tape: good news if you've always envied fortunate disk drive owners with their tuneful copies of Auchogenic's Frantic Preddie The antics of that greedy inlephone engineer are not available on tape, complete with Novaloed, for £2.95. The same goes for Alice in Videoland which has a total of 90% machine code. Apparently, parts of the program have to be inaded whalst the game is in progress. Thanks to Novaload, that s now a feasible proposition on casserte,

SHORTS

Blunder in Reverse: Vic Vactual enthussests wall have sported our bhinder in the November issue we gave the assembly code but not the Bunc loader for the Reverse routine Here it is 10 FOR T-688 TO 216

20 READ A 30 POKET, A 40 NEXT 50 DATA 163, 0, 133, 0, 169, 30, 133, 1, 160, 0, 177, 0, 73, 128, 145, 0, 230

50 DATA 9, 208, 246, 230, 1, 165, 1, 201, 32, 208, 238, 96

SHORTS Doublethink: faced with the problem of dealers who are no longer falling over themselves to stock Vic games, Anirog has compromised by producing duo times which play on one side for the 64 and on the other for the Vic (with 16K expansion) That may save shelf space for dealers, but what do you do if one side won't load? Early titles are available in the ES 95 range there's Tom Thumb, Las Vegas, Minipedes and 3-D Time Trek For £7.95 you'll get Bongo, Flight Path 737, King and Skramble - at least you'll have more people to twon remas with

SHORTS SID blander: we massed out a

couple of program lines in last month's article on the SID chip The lines will let you generate

18 SID = 54272- FOR t. - SID TO SED + 24: POKE L.0: NEXT: POKE SID + 24, 15: POKE SID + 13, 240 20 POKE SID + 11, 129: FOR F - 0 TO 255: POKE SID + 8. F: FOR T = 0 TO 10: NEXT: NEXT: POKE SID + 11, 128

NEW FROM

/Islons

BREDEN'S BASIC



The ESSENTIAL EXTENDED BASIC - Recommended by Department of the High RESOLUTION COLOUR GRAPHICS. STRUCTURE PROGRAMMING TECHNIQUES, MULTI-COLOUR GRAPHICS, USER DEFINED CHARACTER GRAPHICS, MUSIC an SOUND SYNTHESIS and TOOLKIT FACILITIES high many when yeard likening with 150 MUSIC.

BREDENS BASIC has more mands if the it greater to use than any other EXTENDED BASIC formently available, and district the SOUND and GRAPHIC chips to their fullest extent short of writing in MACHINE CODE.

BREDENS BASIC is from VISIONS and as with our products we've reated a well-written and USER FRIENDLY PROGRAM which is, the MOST COMPREHENSIVE BASIC yet away able for the Commodare 6 Using BREDENS BASIC can only elibanie the Commodare 6 using BREDENS BASIC can only elibanie the Commodare 6 using BREDENS BASIC can only elibanie the Commodare 6 using th

BRIDENS BASIC comes with both dark and tape, series? I start the fact thy to upgrade at so the max he active real and the fact that the fact that the properties of the maximum and the start that SK BRIDENS BASIC allows plenty of room for prograd development with a HIGHLY COMPREHENSIVE and EASY TO USE MANUAL, who are to HELPFUL HINTS in the appendice The USER MANUAL, who are to HELPFUL HINTS in the appendice The USER MANUAL, who have to the the start of the USER MANUAL, who have released BREDENS BASIC offer GREAT VALUE FOR MONEY OF SAS IN GREAT BASIC offer GREAT VALUE FOR MONEY OF SAS IN GREAT BASIC offer GREAT VALUE FOR MONEY OF SAS IN GREAT BASIC offer GREAT VALUE FOR MONEY OF SAS IN GREAT BASIC offer GREAT VALUE FOR MONEY OF SAS IN GREAT BASIC offer GREAT VALUE FOR MONEY OF SAS IN GREAT BASIC offer GREAT VALUE FOR MONEY OF SAS IN GREAT BASIC OFFER SAS IN GR

Visions Bredens Sesic comes with a 180pp easy to use manual plus disc



Available from leading stockists including Boots and W.H.Smiths

Boots and W.H.Smiths or direct from address below:

CLS ML LITE SUITE 38 STRAND HOUSE. GR AT WEST HOAD BRENTFOR MI WE SEX 160 SEE



ANKH Competition



The doors slide back in the direction of the strow and may block another per

Control 2 # Stops the shadow proba Control 3 . Makes ti line downwards

E Control to halt shadow probe

Epotrol to fire from bottom of

Left firing cannon



NAME			

el O

ADDRESS

SEND ENTRIES TO ANKH COMPETITION, COMMODORE USER, 30-32 EARRINGDON LANE, LONDON EC1R 3AU

QUALITY CONTROL FROM CREATIVE SPARKS

For those who demand excellence









Available from All good computer software stockists. Creative Sparks

Credit card sales. UK buyers only.

Send me (tick as required) JAVA JIM TNCE163 (CELL)

- COUNTDOWN TO MELITOWN TNCE273 (CISA) BIRD MOTHER INCE263 (C64) WING COMMANDER TNCE 203 (CB4)
- My local slockist's address Game/sat £7.95 each
- + single P&P sum

Method of payment By cheque or PO (no cash) made payable to TECS Sign below

☐ By Access

☐ Barclaycard

296 Famborough Road, Esmborough, Hampshire, GU147NF Telephone (O252) 518364

Jansen interface

There's now a supermarket trolleybil of printer interfaces available for the Commodore 64 ranging from cheap offerings that need RAM-based software to drive them and offer few facilities to the expensive

facilities, to the expensive inselligent interfaces which do almost everything but boil a kettle. The new Print – 64 devices from German-based Jamen. Electronik, costs £83 and falls min the latter category.

If y a Centroutes unorfaces that comments to the 64's serial port to extra observation and the desiral port to extra observation to the 64's serial port to extra observation state of the desiral port of the 64's of AMA contrag as a buffer and an EPROM chap. It's especially adapted to drive e 9 by 9 dor matrux printer like the Epson or Star machines, so you could achieve print speeds up to 180 characters now accorded.

As expected, the device will print the complete Commodore character set both normal and unexcised Mr-se screen dramps can also be taken in four sizes. Those can be normal or invested. Pictures you've created with a 'pump' package can be dramped to the printer, itoo, though otherwisely not in colour. The device compensates for that by selecting a different shade of grey for such of the surseen colours.

But to do that, you'll need to use special contentands on the fleppy disk supplied (a cassets versors should soon be evanishle) That drink also contains of secondary addresses on the devocels outer carson The devoce is evanishle now on mail-order cheech from Eermany, More details from Jantee Bectronik, 1990 [eventuren, Sr. Utier.

Olbach 1, Germany



a you spend many hours 'typing in aumeric date into your 'vi Commodore 6P it you find the conventioned Commodore tybourd e chom; the Commercia Place Commodore tybourd e chom; the Commercia Place Commodore than by be just the thing for you III conditions and in the constrained with the keyboard, when no sets is called in the conpanies keys, a point end a Return key. More details on 0233 americ keys, a point end a Return key. More details on 0233

Books go soft

It's not nown that book publishers are foreigning a trial into the the composite software market, But most of them have, so faz, produced only educational softwares for children. Now, Standford publishers is producing a range of software for the Commodore 64 that complements some of its best-software for the Commodore 64 that complements some of its best-software for 65 Commodore 64 that complements some of its best-software for 65 Commodore 64 that complements is some of 65 best-software for 65 Commodore 64 that

sensing stars of the book with the top.

The packages, according to Blandford sales director, Chris Lloyd, are designed for people who require "more sensor application relating to his or her lesure and discussion activities, the tape smaller you to make better use of the book." So what's

Blandford offering?
First there's rock musician
Dave Stewart's Introducing the
Dots book, which teaches you
how to read, write and arrange
maste. The process is now
comblemented by the

accompanying tape Then there's Plan and Design Your Garden, for which the program allows you some on-screen planning. The Prediction Burthday File package contains the Prediction

Book of Astrology and a tape that lets you keep tabs on bothdays and astrological profiles

If your shars are more romanically modified, there's The Love Oracle package which contains Guy Darsans Knight's book The I Ching in Love Apparently, this has something to do with predicting questions of love, relationships and marriage Each book and-tape package costs \$14.95. More details on 00026 871117.

SHORTS Hold the front page: committee

users of Wordcraft, whether its the standard Pet version or the newer Wordcraft 64 now have their own Wordcraft-dedicated newspaper, published by Datamew Wordcraft. Called Wordcraft Express, it's designed to provide users "with a forum through which they can express news and opinions' More than shat the first seeme contains a feature on an ecademic who s used Wordcraft to write a book in Old Icolandic. Whatever next? Copies can be obtained by writing to Amit Roy, Wordcraft Ermress Radux House, East Street Colchester CO1 2XB



The long ewasted sequel to Andy Spencer's enormously successful biternational Soccer carridge is on its way Sources made for the Grame of the Commodors to at the Grame is now in the fine name stay. Bit graphics are every but as ensuranced as the Social game's were, with otherwing crowds, edyrects on the staking boardings, and authorist measurement of the contract of the contract of the contract of the staking boardings.

The Commodore Socret gains was the most successful game ever produced by Commodore themselves — most of the buts. As well as the beauty independents.

As well as the basketball game there are also runners of a follow up to the first source curridge—Insernational Scoot II. The basketball game is also through to be produced on carridge and well have a price tag of 59 %.



the six-four supplies com

p.o. box 19, whitstable, kent ct5 1ti Access/Visa Orders: 0227 266289, 0227 462600

...Number One For Choice

MULTIPI AN was eracyted by Shoutenands of requisi-

AMERICAN IMPORTS PLEDGE WE are presented to affect the

Phone for a quote if you are in any to THE SIX FOUR SUPPLIES

OISCO

This is the most powerful tape to disk transfer utility you can buy. No program rewriting recessary

TAPER \$9.95

(Softcett-consetts Make recordly backens of uncomes

FASTBACK

Modtonić - c supetti Can make because with a differ-SEFCIAL DEEDS Allibrate Taper.

Deplet equipmes matroney

DISKEY (Ashrenbura Int) -clias

Drakey gives your Commodors 64 the to exemine, copy or modify any risk Resous data from a crashed disk or amply recover egyptched his a For you or two disk units. Also available for

PAPERCLIP

LOOK AT OUR LOW LOW PRICE

Eaty to use but very powerful agrees theel Deton to riskes ratio by word labels Sorte columns/rows numerically or alphabetically Output to Commo done printers only. Very highly recommended (Companion books on its use

CALCRESULT 695

His free 3D (multipaging) facility and National features. Versions for Com-Modern and Eason speters. This is a Yory powerful and much respected springsheet Single page version MIKRO

ASSEMBLER Englares three parts assembler an miced labels source files can be knied montar, screen editor disk or tape op or Plus AUTO DELETE, EDRIMAT NUMBER, DESASSEMBLE DEL and TABLE Monitor has standard TMI

commands plus hard, transfer and dis HS-64 ASSEMBLER OEVELOPMENT SYSTEM

UCL Softwarei - pertridae - diak Oram-capital with all the featurer tricks and ryong programs Car-tricks and disk with assumbler. office OOS supportant a socked sombler and worked examples SOUTH OWN PROGRAMS FEATURES IN Clude AUTO FIND CHANGE DE LETE, TYPE GET, PUT, DO LIST RENUM, JOHN JOHN SCHOOL, COM REAS, SIZE, SETERIC DURBRIK BOOM and IN rem convenions. And there's a grast deal more - including a less intertion feature! This is the most versalis susamble looks time version with the assemble also on ROM:a available (C67 SQ)

KOALAPAO 580 Of natio Tarch Cores - part or elles

This is Healty a great device for gatting The computer - but capable of muci inc computer - but capable of much Comes complete with KoeluPs int whi grams' Programmer's Dude - disk \$14 outless ways in which the ped may be and avolute more meter needed. Support programs (digit) in-clude LOGO Design Maxter (62%, Spel-Ing (£33) Colouring (£28). Other 'pade

MICRO-SIMPLEY £173

(Micro Simeras) - dish F Vis/III is cash business and need seve fours of paperwork. Fully recog sed by the sufronties - it's based on the Semplex book keeping system Suitable for schemps A to E. Detno

THELAST ONE 257.50

SPECIAL OFESS PRICE! Program generalor that frees you from the dividually of waiting limite-made usis managamini programo. Orazie commercial saliabithe in standard BASIC which can than be compled if required #PETSPEED 650, literal is in the form of one-line descriptions defe-ing in plan English this neer's requesmants Programs you cres can be for any application and as simple or as suphishculad as y like Very very legisly recommended—But Hupstor

S.A.M.

Crossics - deb SOFTWAFF AUTOMATIC MDUTH, a curle outstanding place of software which given your \$4 (mittee) speech synthesis capability. Ottors Fr girsh taxt-to-speech or phonetic input in direct or program modes. Full control maybe, but there's nothing like it, ever

SUPERBASE 84 £88 (Street) and a street

Really excellent ristshapen nent avogram intil at our special price This one alths best of its type of a and State and over exect requirements although the concommons although the coneasy to use yet powerful beyond FING STONE and HOMESASE apsperbase - sisc now available Ostalls on request

FLIGHT SIMULATOR II £40/£33 (Buhlogic) - disktrispe

This is so good the authors think you can learn the ropes as law as instru ment control and flying are concerned ient Expensive but it a little best on for the 64 by far - and a MuST for the co-

SPECIAL OFFERS PILOT (d) £40

ASSEMBLED 64 (d) £45 LOGO (d) £3 EASY CALC 64

MAGIC DESK SIMONS BASIC

EASY SPELL (US) EASY MAIL (d) £20 Superbase and Paperclip bought together.

Amongst the more obscure Kerns we can supply are XI 80 already-only sing. Has own last artitor AND sound est Excellent volum at \$95 A parville bus interfere for the 1541 force down flux tittees' includes cable Interface up relocatoble software - price is E75 @ IFFE mierianes - ACL 15700 or CAMS (CIIZ) = to connect your 64 to CBM post ers and drives. Earcy a megabyte or hed of disk storage - that a how wa nue some of our 64s' @ Printer Interlace ange from user port parallel or bles (C29 sectualing softwars) - to sicer Data 20's at (55) whigh enables mos dof metry printers to print the special program lists or graphics outnote Lat

BOOKS

There are some 64 books soe afty about the fid! We have a test feet (Sign with a description of each interest Ws can supply ANY book #I cover price plus 75p each to

ANATOMY OF THE 1541 £10.95 een to get to grips with 1541 use

of programs such as COPYALL or COMMODORE

64 HOME COMPANION

£10.95 it you want more details waste an nelicité on the use of some of the

better quality serious USA soft-wate for the 64 this book is an invaluable source PRICES CORRECT AT TIME OF GOING TO PRESS. Lal us quels you if you man age to find low

Vens

Pretty Basic stuff

Pollowing in the wake of Simon. BC and Danid comes Braden's Basic from Visions Software Factory Described by its propagators on the most comprehensive Banic available vet for the Commodore 64" here's a quick roundup of union a quien i

The program has 138 commands running in 8% of RAM incorporating hi-ses colour chaphes structured programming techniques, multicharacters more sound mostherns and spolled fundition

The program comes in a library case and is well documented with a large and well-depend manual Still at rust over £24, it doesn't come cheep. Sensibly Visions has packaged up both a tape and a disk so you can upgrade to a disk drive without having to throw the whole lot eway We're pulting if on our future review



SHORTS

Crib card: Phoenix Publishing has produced what it calls a "Crub Card" for the Commodore 64 The card folds up rather him e map and contains a wealth of reference information that should save you ploughing through the Programmer's Reference Guide There's e section on Basic which includes syntax conventions lunctions, commands and examples of how to structure Basic statements. Then there's the 64's character set, a default memory map, colour and control codes, SID and VIC chip registers, error messages - and a whole lot more All that for £1 99

SHORTS New man et Commodore: Commodore has announced a certain David Gerard as its new UK Marketing Manager, the aforementioned having market twiephones and calculators before joining the great Commodore amoure *1985 until be marked as the year that Commodore broadened its horizons", opunes Gerard. What horizons would they be? Well, to regan Commodore's "historic dominance" in the business market. With still no imminent appearance of the much blicised Commodore PC and 28000 machines. Gerard will heve his work out out



Hareraser-Finale, it will also help you solve the first murde, number you well on the road to winning the Golden lewelled Hare, or £30,000. Haresoft reckors the winner will face a difficult decusion whether to go for the money or the Golden Hare .. we was with based breath SHORTS •

Turbo on disk: Supersoft has developed a turbo loading unlive which claims to speed up loading times from e 1541 disk drive by around three times it's been uncorporated into Supersoft's new Sancale-3 spreadsheet Don't worry if you've bought the sloggish version, the company is

offering e tree apprade More details on. 01-861 1168. SHORTS First for books: book lovers will

remember that we reviewed two rather good books for the Commodore 64 from US publisher Abacus in the October useue. The range of four biles is now evadable from First Publishing in this country at a cheaper price There's Anatomy of the 64 (£10.95), Anatomy of the 1541 Dask Drave (£10.95), Tricks and Tips for the 64 (£20.95) and The Commodore 64 Machine Lancascon Book (48.85).



Learning to truck

Availed Systems Knowledge (ASE) the accomplished education software house which wrote Face Maker (amongst others) for Commodore and has written e large stack of educational programs for the BBC and Electron machines, has now released a game under its own name for the Commodore

Called Time Trucker, it aims to heln 8-14 year old phildren understand the relationship between the twelve-hour analogue clock (the one with the hands) and the 24-hour dantal

it also explores the relationship between distance and time by getting you to drive a delivery truck keeping to your time pchedule and working out the best route - oh, and there's the inevitable road repairs to watch met for With e intle skill, you might become the Super Trucker

The came comes on cassette. poets £7.93 and includes what looks like e useful twelve-page pamphlet. Utilike most educational cames on tape, this one features Novaload so you're up and trucking in sust over two

Letter from America The soft side of the Car

Last month. Dan Gutman made us all drool by telling us about the new American Commodoreorientated hardware we can't buy across our end of the Atlantic. This month, he's rounded up some unusual US software. Do you like playing with frogs?

I had the chance to meet your own Douglas Adams the other day He was in New York for the introduction of The Marchingary Guide To The Galaxy the distributing it in computer stores and publishme heavywards Simon & Shinster is shipping it

into book stores It's very exching. This is the first time a 'tame' author has written an interactive book. I think it ushow in a new age of literature, the same way The Jazz Singer Adams isn't the only author

who has gone interactive Trillium Software (which is really big name writers Ray Bridbury (The Maruan Chronicles), Arthur C Clarke (2001 A Space Odyssey), Robert Hernlein (Stranger in a Strange Land), and Michael Crichton (The Andromeda Strain) to turn some of their books into graphic

adventure games Bradbury's Fahrenheit 451 is already out for the Commodore, and I like it a lot. The came starts with you waking up near a pond in Central Park and that's rust a few blocks from where I live. None of the Trillium games have the depth of Infocoms alltext adventures, but they do have pictures, and that a important for some people. You can bet that other big name authors will be going interactive too

Is print dead? I asked Donglas Adams that question and he replied, 'Absolutely not. When radio came out, everybody said bodies will disappear. When said radio will disappear People themselves But there a something about the experience of reading a bodk which nothing else will

replace You can't take a computer game on the train."

Frogget falls apart

Probably the most outrageous come out for the Commodern lets you do a samulated from dissection! Those days of hacking up live Irogs in biology class may be over now that we can do it on-screen. No blood, no

You use the joystick or keyboard to remove 23 mernal organs (including everybody's lavorse the gall bladder) and the Computer tells you about each one Its Iun, educational, and there's something definitely

The best part is that you can do something no scientist has ever done - ppl the Irog back together. If you put all the ormans back where they belong (and jumps off the operating table and does a silly dance with a top hat and canel Thus one is strictly for the younger set, but it's cool. For more information, write to Scholastic, 730 Broadway, New York, NY 10003

On the road

One of the brg debates in the US s, "What can you do with a home computer?" A lot of folks think computers are only good. for playing games and word processing. But there's a new program cut that has a real practical use - Roadsourch Phas This is a computerized road atlas of the Uruted States. All you've got to do is two in the new where you live and the city you

want to go to, and the competer

will calculate the shortest passible muse Roadsearch Plus will also give

you a printout of the detailed driving instructions, how long the trap should take, and how much fanl you will use The program contains 406 cities and 70,000 road miles (Write to Colombia Software, Box 2235W. Columbia MD gloss That may not be useful to you

guys, but here's an idea - why don't one of you hat shee programmers do the same thing with the map of England? You guys like to go on trips as much as we do I'll sell you what when you finish the program and you sell a milion of them, just send me 10% of the prolets. Do we have a deal?

Another new program you neght be interested in as Fast Load Cartndge, from Epyx. It does what it says - it will load and power up dasks five times laster than the Commodore disk drive, and copy disks ten trees faster. You don't have to type any extra instructions into the keyboard. Just plug FLC into the Commodore cartridge port and a works automatically, even with the copy-protected disks: It s about the same price as a computer game (Epyz, 1043 Kiel

Ct Surgyvain, CA 94089) A bunch of hot new games nast ha the stores over bore: Charspionship Lode Russes (sequel to Broderbund's Lode Eurmer), Ghastburgers (Activision, based on the morre) Dragon's Last (the home version

of the first laser arcade game). Gassip corner While we all sit around and wast I for the Commodore to officially introduce their new "Amaga

Lorraine ' computer, rumours are flying over what final form it will take One programmer who I trast like my brother claims the machine will sell for just \$695 including a disk drive, and that Commodore is working around the clock to write software for it Another equally trustworthy magazine odsor insists the disk drive will be 35 mches (hke Macintosh), but the computer will sell for \$1000

Yet another "industry insider" claims the computer is powered by three new nucroprocessor chips, code named "Ames". Daphne' and 'Portia' | also hear there is a successor to the C-64 in the works the C-128 How do you know who to

The Plus 4 is out, as you know, and a disk drive for it is coming in Jamary Unfortunately, neither is compatible with the Commodoze 64 &'s too early to sell how the Plus/4 is doing in the US, but some people are saying that several 'key employees' at Commodore don't like it They

A lot of these questions will be answered at the Consumer Electronics Show, which is taking place is Tennary at Lau Vegas. I understand the Commodore buoth will be right next to the Atari one, and you know who ewas Atan new -Jack "Business Is War" Transiel! Inck started

Commodore as a typewriter repair shop twesty-five years ago. He just started another price war, drepping the Atari 800XL to \$129, Rumor has it. Jack's about to shock the world with a new machine at the show. I'll be there, and I'll let you know what happens, I m't this exciting?



GO NORSE, SOUTH, EAST OR CENTURIES.



THE STAINLESS STEEL RAT SAVES THE WORLD

Adventure game program by SHARDS, based on the book by HARRY HARRISON

You are Suppery Jim di Griz, the Stainless Steel Rat. Your mission: to travel through time to save the world. A challenging, illustrated text adventure.

Commodore 64 (turbo load cassette)

John Wiley & Sons Ltd

(cassette, instructions and a copy of the book)

THE SAGA OF **ERIK THE VIKING**

Adventure geme program by LEVEL 9, based on the book by TERRY JONES

Enter the world of Monty Python star Terry Jones's Erik the Viking. Over 200 locations
a remarkable adventure
game with graphics of a
standard I have not yet seen in

an adventure COMPUTER & VIDEO GAMES Spectrum 48K/Commodore 64 Iturbo io ad cassette//BBC Micro 8 £9 55 pate sassette, Instructions and extracts from the book!



THE NOMAD OF TIME

Adventure geme progrem by SHARDS, besed on the book by MICHAEL MOORCOCK

by Michael Modecock
A text adventure with
stunning graphics. As oswald
Bastable, member of the
League of Temporal
Adventurers, you have a
chance to thange the course
of history in alternative
time-stream. time-streams

Sussex (Reg No 641132 England)

Commodore 54 iturbo load cassette) £9.95 packicassette, instructions and an extract from the booki

CH



Published by Mosaic Publishing Ltd Marketed by John Wiley & Sons Ltd, Baffins Lane, Chichester, West Sc

	LICILIAN		and animals of simply by using the coupon
	To Lesley Valentine, John Wiley & Sons Ltd, PREEPOS Baffins Lane, CHICHESTER, West Sussex PO19 1YP	ST.	\square Please debit my credit card account $arepsilon$.
	Please send me		Card No. Expiry date
	0 946855 08 0 Spectrum 48K	£9 95	Telephone credit card orders - ask for FREEFONE 3477
ı	0 946855 09 9 BBC Micro 8 0 946855 11 0 Commodore 64	£995	NAME/ADDRESS
ı	THE STAINLESS STEEL RAT SAVES THE WORLD © 946855 16 1 Commodore 84		
	THE NOMAD OF TIME	£995	SIGNATURE
	0 946855 18 8 Commodore 64 Postage and packing free - please allow 14 days for di	£9 95	U
	D treatment	,	TRISAC TRISAC

Hago Personal Computer Workstation.

At last you can get it all together.

Whether you're operating from home, school or office, the Hago PCW (Ref 816) adds the professional touch to your computer layout. Handsome, sturdy, with a place for everything, the Hago PCW is the home every personal computer deserves.

See your local dealer NOW! If unavailable order direct from Hago.

ONLY £82.75

Shelf for doc drives, tape recorder printer etc

nished in chocolate rown with simulated raik worktop flourited on castors or complete mobility



9

Hago Products Limited, Address Shripney Road, Bognor Regis, West Sussex Tel: (0243) 863131 Signature

Please send me ____(qqy) Hogo (R816) workstations at £82.75 each inc. P&P Lenclose my cheque for £

or debit my Access/Visa*Account No Name (Bod Capatr) Account No Address

Phrasa deletarat applicable

getting haaked an Micranet 800 and Compunet by Brian Grainger and Ken McMahan

If the last megagame you bought now props up the kitchen table or you've thrown your Programmer's Reference Guide at the cat, you're probably suffering from acute computer boredom. But before you exile your Commodore 64 to the cupboard along with the skateboard and pogo sticks, there may be hope. You can now connect your computer to the outside world by subscribing to either the Compunet or Micronet 800 communications network. How do you subscribe? What equipment do you need? What's on offer? Which of the two is best for you? Brian Grainger and Ken McMahon have the answers.



Computes and Micronat - the bassis is on to ant 64 owners lose the modern club

MICRONET AND PRESTEL

Before getting down to the nitty gritty t should perhaps introduce some of the idees behind communication net works. We are ell used to televisions, telaphones and redios for feading us audio end visual information. Some of you will elso know about telex and telefex which are means of communicating the written word between business premises in 1979 the idea of linking all three networks to enable transfer of information from a computer to a display terminal (your telly, to be less pracise! vie the phone nat work was launched to the public. The Prestal service was born

A little bit of history . . .

The besic idea behind Prestal is that

formation Providers (IPs), is stored on central computers. Users who wished to reed the information would cell up the computer using a keyped device connected to the computer vie tha phone line. The central, or host computer es it is called, would than transmit the information down the phone line to e receiving device, usuelly a converted TV Although Prestel was aimed at the home user in en attempt to set the public to use their phones more during off-peek hours it was, because of the high cost involved, only business that used Prestel, in perticular the travel in dustry has made use of it

In 1982 as the home computing information provided by various boom got into full swing it was realis-

d that much of the equipment to use Prestel had alreedy been bought by the home user. The computer had a keyboard and it had a display screen or could connect to a TV. The finel link in the chein was a davice to connect the computer to the phone network end allow deta to be sent in both directions at the rates that Prestal would eccept

Prestel is set up to trensmit information to the user at 1200 bits per second and receive information from the user at 75 bits per second. That device, salied a modam (moduletor/demodulator) operating at 1200/75 together with softwere to drive it, was relatively inexpensive end they soon become evaluable for the major computers such as the Pet.

Annie and BBC micro

The computer owner now had the means to use Prestal. All be needed was a reason. This came in 1983 when Micronet was launched Fest Midland Alled Press (EMAD) decided to become an information provider to Prestal and its 'negas' would contain information of interest to the micro user. More deteils a little later, but in essance Micronet can be regarded as an all embrecing computer club Because Micronet is a Closed Liser Group (CUG) only Micronet members, who pay a subscription, can ectually see the information on the Micronet pages end use the Micronet facilities Agein like a club, Micronet has

several subsections dealing with differnt popular computer makes A Lecent eddition is a section devoted to Commodore 64 users Finelly, because Micronet is part of Prestel all the general information from other IPs would also be viewable by the Micionet member

Logging on

So let's go into a little more detail about the services eveileble 1 shall atert with Prestel, of which all Micronet members are a part. The eystem is designed to be very simple to operate With modern, TV end phone connected to your commuter it's simply a matter of dieling the local Prestel computer. Some moderne will even seve you a lot of bother by dieliing the number for you provided you have previously stored it in the modem

When the Prestel computer enswers the call it will eutometically eend information to your micro end Prestei host computer when it is

esked for. On successful receipt of the ID the host will then esk for a password. This is for security purposes so that you have an individual coda for usa number (up to 9 digits) and in eddition can hold up to 26 different screen displeys called frames. You can display the 'e' frame of any Prestel page to which you may have access by keying in the page number and giv-



game for 1000 simultaneous players. Has suffered from parsistent bugs

with Prestal to ensure nobody else uses your ID to run you up a hefty phone bill. Obviously the modern will not give the pessword eutomatically so you key it in from the micro's keyboard. There is a faculty to chance the password should you wish to improve the security still further.

Having got these preliminanes out of the way Prastal will send you en in dex page which, like all pages, is

ing the Prestel equivalent of the return' key (#). For example *800 # will display the 'e' frame of Page 800 which is the Micronet front page. To see the b, c, d, . . . z fremes, if they exist, you simply prese '#'

Each page also has associated with t up to ten routes to other Prestel pages which can be displayed by pressing a single key (0, 1, 2, . . . 9) These joutes are set by the Information Provider and are used to quide users quickly to where they want to go. For example a page of news heedlines mey heve routes to names which give more detailed information on a perticular news item.

Looking through the trees

This idea of an index page which routes to up to ten other pegas (which may each in tuin route to ten more end so on) is known as a tree structure and forms the besis of the Prestel information structure. While sometimes criticised by experts it is VALV BASY to use for the beginner and Unlike some networks I have tried will be mastered in no time at all.

Now showing on Prestel

Now we know how to move eround Prestel what information is available? The following gives a guide

· News, Weather and Sport - a number of IPs provide information on these topics Travel Information — trein times

end excreft schedulee. The latter much eesier to understand then ASC Guides

• Travel Guidee - information on most towns in the UK including



MUD-the highly successful adventure game. Letters along for Multi-Uner Dungeons Compulsive fun. but et £3 en hour you may end up in Mud Usets Aponymous

ask you for your individual identity if number (ID). This number is only given to you when you register with Prestel Agein some moderns will ellow you to store this number and will automatically send it to the

displeyed on your TV or e monitor screen. The perticular page sent will be dependent on whether you're simply a Prestel member or whether you belong to Micronet as well

A pege on Prestel has a page

pantinued from page 21

surtable hotels to stev at. International destinations are also itemised Games — e numbeu of recreational pages appear on Prestel including a Dunggons and Diagons game.

 Teleshopping — provided you have e charge gard like Access. Barclaycard etc. It is possible to order all manner of stams directly from your micro. This includes computer equipment, household itams and books, You can even book theatre tickets at

cortain theatres Public Information — various Government bodies have pages on Prestel so that the user can get the most up to date information on services

 Electronic Mail - you can send telev's within the LIK Sand letters. through Prestel to any other Prestel user (Marthox)

 Interest Groups — contact services ere available for many things. Want to get in touch with model railway enthusiasts? Then put out a massage on Prestel and make some new friends. Want a new girlfriend/Luvfriend? Than but a message on Simpatico.

· Discussion groups - it is now possible to send messages which are very quickly displayed to all Prestel usere who might be looking. In this wey discussions can be carried out between users lagged on at the same time

Services on Micronet

What about the extra services for Micronet members? Micronet has been very popular. It was the first IP to have a million frame accesses by users in one month. It is not hard to see why. It cetters very well for micro users whe happen to be an ever increasing proportion of the UK population. The following is a summery of what is now available. Latest Computer News — undeted

daily, this service really provides hot information. If you are thinking of buying the letest whizzbang computer then somebody on the Micronet team will have tried it a faw days from launch and bring back some reality to the cleims of the advertisements Can't get to the letest computer show? Never mind, Micronet will

report it day by day. Help line — got a computer related problem? Then send it to Micronet to put up on the helpine pages. There must be somebody looking who knows the enswers

● Teach Yourself Programming — a course in learning Besic is on Micronet.

· Swap Shop - got some equipment

you no longer went? Than advertise it Cammodore 64 Microbaes — all the letest information on your

fevourite machine in one easily accresible area. That's the plan envway, information is rather thin on 22 the ground right now

· Clubeport - all the major user groups put information here. ICPUG has over 100 peges of information on regional groups, technical tipe, news.

reviews and a cumulative index to the news letter Chatting - Micronet's year own

discussien group. Telesoftwere - neuhans the most Important area. Micronet pages are used to store programs which can be traneferred down the telephone line to you disk drive. They can then he run et your leisure. Many progrems ere free of charge but some organisations

are selling software this way se well. Registering with Prestel

and Micronet If that lot has whetted your appetite to join up with Prestal or Micronet you'll want to know what to do. If you only want to soin Prestel then you will need a modern, software to drive it end you will also need to register with Prestel. A number of moderns are on offre from Tandete, Priem, OFL and Commodors to name but a few. Expect to pey somewhere eround £100-f150 by the time you have bought the software as well. It may wall be towards the high and for Pat users For enquiring about regretaring with Prestal phone the operator and ask for FREEPHONE 2043.

What you pay

If you wish to become a Micronet member then, if yeu are a 64 owner. all you have to do is contact Micropat They have a eustable modern aveileble. Including softwere, et £123.65 including VAT. When you register with Micrenet they will eutomaticelly register you with Prestel. The address for Micronet is Micronet 800, Telemap Ltd., Durrent House, 8 Herbal Hill, London EC1R 5E.I ITel: 01-278 31431

After the initial modern costs you pay for the services much as you pay for your phone. The Prestel service standing charge costs £5 a quarter to home users and Micronet an additional £8 a guarter. Provided you use the service during off-peak bours 118.00 · 0800 Mon-Fri, 13.00 onwards Set, all dev Sunday! Prestel do not charge for use. Certain Prestal pages will be charged for (such ea commercial eoftwere) but most of the esivices mentioned in this article are fiee. Your phone costs while accessing Prestel/Micronet will be charged as normal through British Telecom.

Micronet are particularly groud of their animate Chestings conf. Traditionally atting in here: Afficient had a realizer of the nam CL on screen fust trends minutes after by liganch. The detabase contains technical magnin hee's Alektin a Cave of free antowers. Just three ings in the Games secrion but much more in the the installing useful utilities. Stantal for inter

Interiory Inspectation
Companies a shapely—the most environmental to the
Companies a shapel—the most environmental to the
Companies a shapel—the most environmental to the
new system. This is your bit—witte needs creditive and
software to disadd enrich that the memory—the large
period of the companies additionally only only one of the
period provide. Companies additionally only on the
period of the companies of the period of the
period of the companies of the period of the
period of the companies of the
period of the companies of the
period of the companies of the
period of the
period



The most impressive thing about Micronet 800 is the measive emount of information available: there are Interally thousands of pages of it. There is no directory structure as such, instead index pages inform the user as to what is available. Each item on the index is eccompanied by a two digit number which when keyed in takas you, occasionally via a aub index, to the relevant page. There is elso a fepility to GOTO a page number directly

This system of information returnal is not quite as simple as Compunet's For e etert you have to use two hands which, unless you can write with a





COMPARING MICRON





command whereas Micronet seems to respond instantly. This may seem unimportant but it can save you a lot of talephone time and when you're etering at the screen weiting for something to happen five seconds cen seem like an aternity.

As fel as software is concerned the major difference seems to be one of soproach. Whereas both systems hold some of the titles produced by the big eoftware houses, Compunet heve a much more open attitude in that literally anyone can sell anything. So, if you like the look of it, you can buy the latest megageme on offer









pen in your mouth, makes life a little difficult. Also there are a number of of difficult, also there are a number of commands to remember although there ere usually lentry of prompts to their you out in this respect. Finally it hold by should be posted out that, for the moment at least, Micronet is much legge than Compunet. It should not surprise you'rd's a little more difficult to find your way eround

But enything Micronet lacks in this respect it more than makes up for by the speed of it's response time. Despite the fect that both systems operate at a 1200/75 bead rate, Computer can take enything up to five seconds to respond to a





RCIET AND COMPUNET





from Fred Smith in Barnsley. The drawback of course is that Fred's brainchild might not be the masterpiece of software engineering you expected. That's why Micronet don't do it.

That isn't to say that you can't sail software on the Miconest 800, just that it has to be very good. It's really much the same as selling it to any good software house. Micronest carry extensive evenues of much of their software as Compunat have now sterad to do. Compunet also have a facility for users to vote on software they have bought.





COMPUNET

Compunet is not nearly as old as Micronat 800. It was officially leanched last September es an expension of company, although it had pendent company, although it had control to the services brilled Micronat Commodor UK and London-baned ADP Network Services. Unlike Moronat, Computer Services unlike Moronat, Computer Services unlike Moronat, Computer Commodors exclusively for the Commodors office of the Commodors and the Com

Hooking Into Compunet

As with Micronot, you'll need a modern to among voor consider to the telephone system. The most convoue-choice is commonwed to the telephone system. The most Communications Modern, for two Communications Modern, for two common telephone of \$9.99, you get a free one-year subscription to Computer, within can be renewed at an annuel cost of \$30.5 econolly, only the Commodern modern list present will let you download software from the system — but more about that

The modern itself as a neat bleck box which pluge into the 64's cartridge port — you need no extre software or perspherels. The lead is ebout three metres long and pluga into a standard British Telecom jack socket. If you've got the old type fitting, a socker conversion will cost you enumed 515.

Where can you get the modern's Probably the best option at the moment is by mail order from Viscott. This means you will have to wait up to The mean's you will have to wait up to hurry you might try your local commodore desire. The commodore desire from the commodore desire. The commodore desire. The commodore desire desire. The commodore desire desired desired

Once you've acquared your Commodors moders there as one more thing you must do before you cen explore the hidden delights of Compunet and that its register with research with the commodors of confidentiality and your Armed with modern (ID, password, Armed w

armied with modem, ID, password, and of course your Commodore 84 you ere now ready to get to gnps with Compunet. This is comperetively emple as it is handled by software in the modem. After typing CONNECT the computer will prompt you with a request for a number. You have the choice of twelve telephone numbers in venious parts of the country, this being the case you shouldn't have any trouble finding a reasonably local one. There's even one in Liston.

As you type the number it appears on the screen so that you can check it, hit the Return key and the modern dials it for you. Magic! Once connected you will be required to enter your user identity and passcode, on entering this the main directory is displayed.

Getting around in Compunet

Information on Compunet Is stored and displayed in the form of a disectory system. Finding your way around is relatively simple fonce you know how. But to get started you need to know how two things: how information is displayed on a disectory, and how to give commands to the Compunet computer using the "disubschool".

Substanced: If you refer to the photograph of the Compunet directory you can see that the title of the directory page — Welcome — is displeyed at the title. Welcome — is displeyed at the title of the directory of the title of

T indicates that a frame of text is present. This may be accompanied by a number: for example 173 means there are three frames of text. P indicates a program (PP = means Protected Program). D indicates a directory entry without accompanying text. Occasionally T or D may be accompaned by e 's' which means there is a further sub-directory under this heading.

Great! I heer you sey. But now I know what's there how do! getto see it? This brings us to the duckshoot. Not, es you would expect, a method of mess extermination for mallerds, but simply an idiot proof wey of telling. Compunet whet you want to do. The commends are as follows:

DIR : Reveals enother directory.

SHOW : Reveals a text frame.

SAVE : Downloads a program.

SAVE : Saves a downloaded program.

EDITR : Accesses the editor
HELP : For when you get stuck
LEAVE : Disconnecte you.
UCAT : Displays a catalogue of
your uploaded frames.

23

ACCNT : Shows you your bill (best evoided)). LIPLD : Unloads a text frame or

LIFE

PRINT

program. : Used to extend life of entries.

: Printa current frame : Returne to previous BACK directory GOTO : Goes directly to a

numbered frame MAIL : Accesses your electronic

mailbox VOTE

: The Computer depometer - allows you to vote on softwere.

These commands are displeyed on a continuous line at the bottom of the screen and can be scrolled past a window by using the cuisor keys. When the command you require appears in the window you simply press Return end it is executed.

For example, say you wented to see the text freme associated with the directory entry 'new dimensions' at page 1000. Using the cursor keys you move the red bar down the screen until it highlights that particular entry Agein with the cuisor keys, you sciall the duckshoot until the command SHOW appears in the window. Pressing Return reveals that frame of text Once you've read it, pressing any key will return you to the directory. This perticular entry is suffixed by a '+' which means there is a sub-directory with that heading To see this directory you would use the duckahoot in the seme manner, this time selecting DIR.

This method has the advantage that you only need to use one hand for cursor key operation leaving the other free for making notes of pege numbers and other information All Compunet's facilities are accessed in this way, from simply exploring the datebase to uploading your own textframes end programs for others to see and use. You can avan charge for

Now showing on Compunet

Now you know how to find your way eround Compunet you'll immediately went to know what's on offer. The introductory pages consist of an explenation of how the system works, what's aveilable, and how to find it. This is generally a good place

 Latest computer news — you can obtain the latest news and information about the micro industry. Some of this is provided by a cheracter called Ifor reesone best known to him/herself) Triddles The Computat, whose big scoop at the time of writing is the inside story on The Great 24 Prestel Hack

• Telesoftwere - if news is not your cup of tee, you could try downloading some of the software thet's sveiable At the moment only a spaise number of titles are evalishe. In the games brecket Liamesoft, Mr Chip end Creative Sparks (Thorn EMi) all heve goodies for sale, although by for the biggest supplier is (you guessed it) Commodare. A lot of the softwere is free, one exemple being an excellent game by Jeff Minter celled Syzoro

Generally speaking, though, don't expect too much from the free software. The commercially everlable titles cost elightly less then they would in the shops. This seems only feir as the user ie forking out the price of a disk or cassette instead of the menufacturer One important point if you download commercial softwere. the modern used to receive it must be plugged into the Commodors 64 or the progrem will not run. For more serious users utilities, business, and educational software ere evailable, everything from a spresidsheet to a

spelling tutor. The Jungle — you can also download softwere here, but basically it's an area of Compunet given over almost entirely to users in this instance the law of The Jungle is a sort of controlled anarchy. Primerily it's a bulletin board on to which users can put enything they like, and they do. The mein directory divides The Jungle into six main areas software, small ads, clubs and accieties, hobby corner, user notice board, end jobspot. Of course there's nothing to stop you putting your small ad in the software section, but it halps if you try and meinteln some

semblence of order. The softwere here isn't always of the highest stenderd, but that's the price you pay for interactive freedom. The payoff is that this is one of the most interesting end amusing parts of Companet. MUD — no description of

Compunet would be complete without a bit of MUD. MUD or Multi-User Dungaons is an adventure game originally developed at Essex University by Roy Trubshaw and Richard Bertle. It has now been mede evailable on Compunet by Century Softwere

The great thing about MUD is that eny number of people can play it at the same time. Hence you can be wandering through The Land minding your own business when you burnn into Fied the Werrior You can have a chat with Fred, join forces with him and help each other out. Alternetively he may kill you. The permutations are therefore endless and you have to watch out for yourself.

If you're very good end reach the level of Wizard you become sill powerful and everyone has to wetch out for you. The only drewback to MUD is the cost which is £3 per hour plus the phonebili while you are on-

What you pay

Speaking of money, use of Compunet will involve spending some. Connect time between 8am and 6nm is charged at a rete of £7 per hour. Compunet is fine after 6nm and at weekende Storege of e textframe costs 1p per day and if you sell env softwere Compunet will charge you 40% of the sale price for distribution. Compunet will bill you quarterly or when you run up £50 worth of debt. whichever is the sooner I've found thet using the system when it's free and exercising a certain amount of case over what you buy keeps coats reseanable

Which one is best?

Now we come to the crux of the metter, Which one is best? By now I'm sure most of you will have made up your own minds and besides. nothing's ever that simple. However, for the time being at least my money is on Micronet. When it comes down to it the main purpose of these systems is to provide information and Micronet BOO has stacks of it it is also very biped in scope. As well as Commodore 64 information and softwere it offers information on other computers, software and peripherels

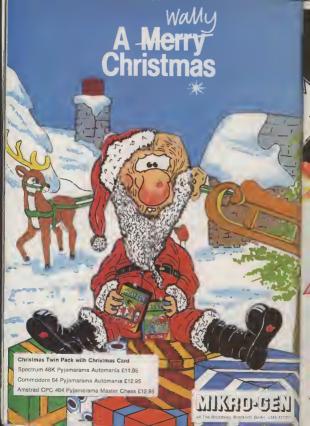
Compunet on the other hand is comparatively smell, but it's growing. The one big thing that it has going for it is it's ease of access. In The Jungle you can set up your own bulletin board, club or society, even your own softwere house. Given an increase in the number of subscribers (there are under 600 at present) it's anybody's guess where this might lead.

The choice is therefore up to you. If you want lots of information now and your maximum input is unlikely to consist of no more than the odd piece of med or a response frame then Micronet 800 is for you. If uploading your own software, erticles, etc. and having a more positive input appeals you will probably get more satisfection from Compunet.

But one last point may swing it. I have it on good authority that you can now log on to Micronet BOD using the Commodore modem end a piece of softwere by Viewdete evailable free on Compunet. You can therefore enjoy the best of both worlds for the cost of the Commodore modern, the software end the quarterly subscription to Micronet (£13).

So if having reed this you still can't make your mind up, the enewer is obvious. Use both. At £125 ell in, it's not as horrandously expansive as you would have thought.







SPECTACULAR FLIGHT SIMULATION OF THE

WORLO'S MOST EXCITING JET FIGHTER WITH STUNNING 3D COCKPIT VIEW AND THE MOST REALISTIC 3D AIR-TO-AIR COMBAT EVER SEEN ON THE SPECTRUM!

The SUPREME SIMULATION. It leaves the rest at the

SPECTRUM £7.95 COMMODORE 64 inc VAT & n & n

£14.95



COMMODORE 64 £14.96 Fighter Pipt Castelle SPECTRUM

48K Coming TT Roose 48K soon VA was a production of the Live to a production of the



NIGHT GUNNER Colum

£6 95 48K Spectrum TOMAHAWK £7 95 48K Spectrum The ell battle where only aces survive with enemy tighters attacking from all chickbana guns blazzing suplosive 3D ground sits chickbana guns and there e ethi the floots beauty.

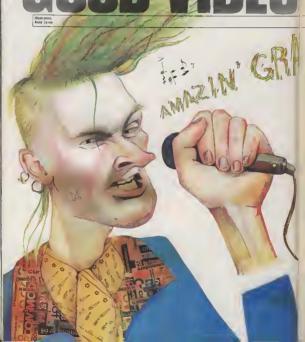
WIZARDS OF SOFTWARE

Ox debil my Access Account No.

Trade and Export enquiries welcome. Lifetime Guarentee



GOOD WBFS



ADDING VIBRATO TO YOUR MUSIC

If you listen to a lot of music, whether it's pop, jazz or classical, you have almost certainly heard a singer or instrumentalist use vibrato. Vibrato warms the sound of a solo line and makes it more expressive. In fact, we sometimes say that and 70, this program simply vibrato "humanizes" the sound - just what the doctor ordered for that cold silicon fish inside the Commodore 64 that we call the SID chip.

It's not especially difficult to fall. Or think of a lazz. The amount and speed of add vibrato on the Com- trombonist playing a ballad, the veriation ere quite importend vibrato on the Com- trombons preying a ballows for example, you would note the how-to expect of back and forth on a held note, use a wider, slower, more things we had better figure causing a similar effect, nebcosable vibrato for jazz vibrato, outjust what vibrato is These are both examples of than for classical music, Or, if If yo Actually there are a pitch vibrato, although there you're an opera fan, think of

number of different ways to is some varietien in loudness the opers singer who has sung produce vibreto, but basic- also

the player's finger rocks back you might guess, a variation and forth on the ingerboard in the loudness of the sound.

This "vibrating" of the hand along with a shohi varietion in causes the pitch to use and the pitch

too many Wagner operas and

ally it consists of a regular. Some wind instruments, thus has nothing left but variation in pitch and/or most notably the flute, vary vibrate - he or she probably loudness. Think of a violinist the wind pressure to produce won't be coming back for an eler different sound. or a quitarist on a held note a vibrato. This produces, as encore.

Producing a vibrato The easies' vibrate to produce on the Commodore 64 is a pitch vibrato. Type in

As you can see from the REM statements in lines 50 russes and lowers the pitch a little bit How did I figure out how far to go each way? By experimenting, of course. The speed of the vibrato is

controlled by the STEP2 and STEP-2 statements STEP1 would produce a slower vibreto, STEP3 a faster

If you went to, you can change the amount of vibrato by changing the amount that "A" is allowed to change if "A" goes up to 245 and down to 145, for example, you'll get

The problem with this tech nique is that it gets tiresome to program. If you would like an autometic pitch vibrate that work; on the interrupt system so you don't have to worry about all of those FOR/NEXT loops, type in this next prooram

erntinued on page 32

PART ONE 18 ANDREWS AND THE PROPERTY OF NOTE AND LOUP

PART TWO

The property of the property o 30 Principle, 16-1000020 - 2010 Principle - 2010 Principl



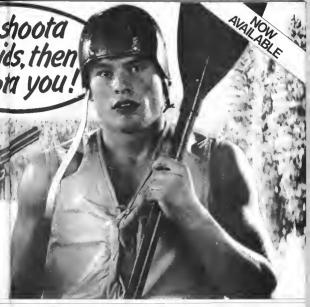
CLIFF HANGER

AUTHOR - JAMES DAY ORIGINAL MUSIC - BRIAN DOE

Thrill to the cartoon style action of Cliff Hanger, a really original, Wild West game. As Cliff the hero, you've got to stop the bandito shooting up the carryon. But with its own brand of wasky cartoon action fun, things simply aren't as they seem in Cliff Hanger. For a start, the boulder you throw at the oil bandito may just come bourning back at you.

Citif Harger incorporates all the elements that have made. New Generation games best sellers for the Spectrum, such as original lotes, superb graphics and histoics happenings—but now at available first for the Commodore 64. Featuring 50 separate screent, there levels of difficulty, one or two players accompt. Hall of farme and pystick compatibility or

Featuring 50 separate screens, three levels of difficulty, one or two players scoring. Hall of fame and joystick computability or user defined keys, Chff Hanger is set to be THE Commodore games playing sensation. Available from any good software store for just £7.95.



Shoot the Rapids

AUTHOR - PAUL BUNN

Ever wondered what it would be like to face the fierce white water in a top class canoeist slalorn run? Well wonder no more because you can enjoy the fast action thrill of competitive canoeing from the comfort of your own armchair with Shoot the Rapids.

It's a game that involves real skill because you must move your joystick to simulate paddling action. You must get through the gates of the slalom course in the fastest time possible, while avoiding the river bank and rocks. There are also extra hazards like rogue speed boats and interfering beavers to worry about.

This multi level game features increasingly difficult river courses with superb graphics and smooth scrolling along the river. Qualifying times have to be reached to move onto the next course.

With Hall of Fame, one or two player scoring and joystick compatibility, Shoot the Rapids is probably the best sports action simulation game devised to date. Available from any good software store for just £7.95.

EVENTIE

(GSFH) New Generation products are sold according to their terms of trade and conditions of sile

OO VIBES FROM

lines 20-100 ere there just to John or LFO. provide a little damonstration music. With a little modifiicetion, this program will provids some rather astonishing sounds, so, if you feel inclined, have a go stit

Using the autometic vibrato m your own music programs is quite simple, lust include Itne 10 and Itney 500, 680 (line numbers are not important but make sure that if your program includes its own READ/DATA Itnes that it READs the right DATA at the right time) in your program

When you want a vibrate in voice 1, use SYS49157, and. nstand of POKEing SID and SID+1 with the pitch information, POKE 253 and 254. Make sure that you POKE 254 or you will occasionally get some unexpected sounds Then start the note by POKEing SID+4 just as you normally would Turn the vibrato off with SYS49170. and remember that when the vibrate is off you need to go back to POKEing the pitch into SID and SID+1

There are meny ways to get s vibrato from SID. You can set votce 3 to a very low inquency, then set up a loop that POKE SID, PEEK(S+27) (the read register for voice 3 lrequency) A prolessions synthesizer player would say

vide the automatic vibrato; as a Low Frequency Oscil to be avoided on a synthesizer with only three votces

The disedvantage of this Another way is to use the technique is that it uses up envelope and gaing controls votes three without making to get an intensity (loudness)



vibrato, although I've never notten one that sounded really good with this method. Maybe one ol the hoffine emongst you can do better.

Sidney Sawtooth plays nn

You can, however, combine all of the vosces to create one complex sound with an interesting intensity vibrate. The next program uses all three voices deliberately set a little out of tune with each other (detuning), ring modulation and envelopes (ADSR's) set to different values to make a ncher sound then any one vacs could provide for this not unpopular folk melody; Notice in line 110 that the pitch of voice 2 is set a little under voice 1 and the pitch of voice 3 is set a little above voice 1. This "de tuning", along with the ring modulation in voice 3 (more about

Think of the sound waves coming out of your speaker as a surrey of compressions and rarelications of the air. The closer together these compressions and rarefications are the higher the pitch sounds to you

that in a later article) causes a

which gives the effect of

"beat-

phenomenon called

vibrato Here's how

ing"

If two pitches are being led into your speaker, their compressions and reminentons will sometimes augment such other, and sometimes cencel each other out. Il the two are very close to each other in pitch, they will sugment each other and then cancel each other out slowly enough that you will hear the altect as an intensity vibrato.

If you listen to this program through a good hi-fi set, you will probably heer four notes in each of the lest two chords No. I didn't find a hidden fourth voice in SID, elthough l wish someone would. When periam intervals am tuned tust right, the same acoustical phenomenon that produces the vibrato in this example will give the effect of a lough

voice. Here's what happens The cycle of augmented and diminished volume that produces the vibrato is itself a pettern of compression and rerefication of the air If we speed that pattern up enough. we will hear it as a note itself instead of as a vabreto. Ons other thing to notice: lines 80 and 90 cause the slide effect hetween notes

That's three ways to produce o vibrato on your Commodore 64 - who said SID couldn'telna?

PART THREE

18 \$-54272,FORL=8T08+24+PGMCL_\$-NEXT-PGMCS+24,311PGMCS+25,1-PGMCS+22,45

| \$ \(\text{Model2} \) = \(\text{Model2} \

226 DATA38,236

A package of four completely different

Available from				
All good computer software stockists				
Send me (frck as required)				

- ☐ My local stockist's address ☐ Your full list of games
- □ ____copy/ies of this game TNEE 293 at £14 95 each
- + smøte P&P sum Total to send
- Method of payment By cheque or PO (no cash) made payable to TECS
 - - By Access or ☐ Barclaycard
- Enter cardino Sign below
- Credit card sales. UK buvers only
- 296 Farnborough Road Farnborough, Hampshire GU147NF Telephone (0252) 518364



SPECTRUM HANDROOK



Which Macro Magazine's Mandbooks

Author Pete Gerrard, a regular columnss for Which Macro has not

Sophisticated Games for Via 20/CBM 64

Viol64 Cricket Realizatic game of lactical skill and lack field by balt commentary with full accracing and all the major rulated cricket cor Vic Cricket for Vic 20 +16% Naw 64 Creket with extra features Leegue Seterr Laague Intlagame for 2.24 playar a width outcomattic tix angua Soccar for Vic 20 +16K Naw 64 League Soccer with many mora faatures still Wholesail 12 quests have gathered for drink as t Murdar Manor but one of them has more than drink aon his mind. Additione and thrilling detactive game for 1106 players with groupingly different germaeach Whodunnit for VIc 20 +8K or any CRM 64 (atata which) Top of the Pops Enay to learn about the mugic business For up to players include pember gama asve tacturas Top of the Popa for Vic 20 + 6K New, 64 Top of the Pope avan biggas and better 65.59 Election Night Special Lead your own Party into the naxt General Electron A gama for I 3 player a Printer yoma asve Election Night Spacial for Vir. 20 - 5K or any CBM 64 C4 99

Forly 4 Four german to match the progression your perty. Master word, A Day at the Recea Game X (Strip Poker) and Consequences Vic Party 4 for Vrc +3K or mora 64 Party 4 NEW Adults Only Fun game for 2 10 broadmended players a Lota of cuddling and knaming, plus many other rewards and forefatts you never know what you'll and up doing or will whom! Nothing offees

Adulta Only for Vic 20 +16K axpanalos

Disc veraiona availabla for all games - £2.00 sets a All pricas include PSP (UK only) Sames suld subject to condition a of sala which as a avadable on request Planas write or phone for datafalof our full range

Sophiatu atad Games Dept CU 27 Quaina Road, Keynaham, Ayon RS16, 2900 Tel 02756 3427



Computer and Video Games, Britain's most popular computer games monthly, bring you two exciting new books for the Spectrum and Commodore 64.

Each 100-page book contains up to 30 brand new games checked and prepared by ar

	Computer and Video Game's regul contributors.
l	At £4.99 - the best value on the market at a good bookshops from October 26th, or dire through your letterbox by filling in the coupo below.
	Please send me, post free copies of the Computer & Video Games Commodore Collection
	Computer & Video Games Spectrum Collection
	l enclose remittance of £ at £4.99 per book, made payable to EMAP Books.
	Name
	Address
	I
	Send this coupon to:

EMAP Books, Bushfield House, Orton Centre, Peterborough, PE2 OUW



How to teach your Micro a thing or two

Thousands of home computer owners have yet to discover their microcomputer's potential to help with many of the problems and decisions that come up every day in the home or office.

Perhips you have always promised yourself that you would teach yourself programming, but have been put off by minutals which seem to assure a lifetime spent suddying computer science and mathematics. Maybe you have tooked at other computer books, but have yet to find one which is free of unnecessary jargon or where the program examples bear some relevance to real life and not space invaders, Relax, your search is over.

The 'Learn BASIC' tutorials from Logic 3 are the latest development of a teaching method pioneered by Professor Andrew Colin and perfected by testing on 3 generations of students at Strathelyde University, The 'Strathelyde Method' has been translated into 8 languages and used by over 300,000 microcomputer users.

'Learn BASIC' is a jargon free, step by step, course in computer programming, which explains everything clearly in English, not computer talk, in a matter of hours you will be writing your first

"Learn BASIC" is designed for people who want to keep abeast of the computer age, for people who realise that understanding computers is a key to future success at work, at school, and as a parent. Get 'Learn BASIC' and teach your micro how

to be useful! (Available from mayor branches of W.H. Smiths, Boots, Laskys, Greens, John Menzies and better computer shops nationwide.)

(Postcode),.....

lease send me more inform our:-	nation about	I have a:-		
ont:	Fick appropriate box)		Sinclair Spectrum	
Learn BASIC tutorials			Commodore 64	
.ogic 3 Spectrum Club			Acorn Electron	5
ogic 3 Commodore Club			BBC Microcomputer	
64 and VIC owners only)			Dragon	
Name		LOGIC	Address	
		LOCIO		

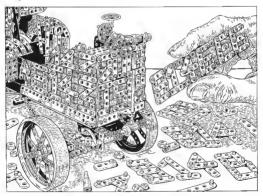


GOING INTO ASSEMBLY

Four 64 assemblers reviewed

by Ken Ryder and Dermot Williams

There are several ways of entering machine code into your 64. You could painstakingly hand-assemble your list of 6502/6510 mnemonics into DATA statements using a Basic loader. But you could buy a machine-code monitor or, better still, an assembler. The last two methods are recommended to avoid sleepless nights. Ken Ryder has been getting to grips with Audiogenic's machinecode monitor and Doctor Watson's Beginner's Assembly Language, whilst Dermot Williams has grappled with Interceptor's Assembler 64 and Zeus 64 from Design



Audiogenic Monitor

Audiogenic's Monitor, at £29.95, is the most expensive package reviewed here It is contained in a stundy, neat, chocolate brown cartridge It occurries 8K of address space from \$8000 to \$9FFF, so the Basic program area in

reduced to 30K when the cartridge is in place

Commands

The firmware offers 17 commands - 16 anable machine code to be antered. examined and modified; the other one allows a

he connected to the user port via a suitable cable Unlike the original TIM

monitor found on Pets which tends to be the starting point for designers (and reviewers) of any Commodore assembler, the Audiogenic Monitor boasts an assemble command (A). Centropics parallel nunter to. It accepts standard 6502

mnemonica, addressing notation and hexadecimal operands. Branching is made easy by spacifying the branch address instead of calculating offsets in twoscomplement

Conversely there is a disassamble command (D) which displays the machine code in hex followed by the equivalent mnemonics and onerands from a specified start address The disassembly stops after each screenful, either the hex or mnemonics can then be overwritten and will be re-

assembled automatically. An area of memory can be filled with the same byte with the F command, useful for setting up screen colours and displays. The hunt command (H) can search an area of memory for a text

string of sequence of hytes Any area of memory can be displayed as hex values shown in eight columns with the M command, the normal 64 screen editor can then be used to overwrite any particular value in this way areas of memory can be filled with data for use by the main program. This data or indeed any other area of RAM can be transferred from one location in the 64 to another by using the T

useful for checking the flow of a program, and for tracing unexpected loose

Output

Machine code cau be saved and loaded from tane or disk with a blename Unfortunately there's no Venty' command to check that the code saved is the same as that in memory, A disassembled area of memory may also be sent to the printer of required (with

the P command). In addition to the monitor features there is also a (C) command to connect a Contronics parallel printer to the user port. Once the command has been executed, control can be returned to Besic; and listings, files etc., can be sent to the printer in uppercase CBM ASCII or upper/lower-case true



command, so code can be opened up as a program

expauds. The usual G command is included to run machine code from a specified address at full speed Alternatively the program can be stepped through instruction by instruction with the current position of lhe program counter displayed in addition a Walk' command can step through so that at each instruction the contents of all the registers are displayed together with the hex and disassembled instruction. At any time the contents of the registers can be overwritten and the walk process continued. These last two 38 commands are obviously

Conclusion Audiogenic's offering is a fairly standard machinecode monitor with the convenience of cartridge operation and the added bonus of a Centronics printer interface provided you have a suitable cable. But the documentation is minimal, iacking detailed examples, and a beginner will need a book to reler to Commodore's own 64 Programmers Reference

Guide should do. This monitor is gimed at the expertenced user, writing relatively short code to be included in Basic programs, or to add commands to the rather limited Basta language.

- BO Box 84

Dr Watson's Beginners Assembly Language

The Dr Watcon assembler course consists of a tape and book presented in a library book type binder. The complete package will cost you £12.95. The tape contains an assembler and a tutor in the black art of

hexadecimal. The menu-driven assembler falls somewhere between the Bolis-Royce Milro 64 and the Audiogenic Monitor, again occupying about 8K of RAM. It is not a true assembler like Mikro 64 where a source code is created and then assembled ulo machine code (object code) Instead it is a continuous assembler like the Audiogenic offering: it is far more flexible, though Labels are supported and

operands may be entered in hex and decimal By default the number of labels is bmited to 21; but the assembler is written in unprotected Basic, and instructions are given to increase the limit by altering

the program The assembler also includes the rather advanced feature of MACROs A MACRO is a series of instructions which reoccur throughout the machine Unlike the Audiogenic code — it is not a subroutine, though It is sometimes more efficient to pepeat instructions in machine code instead of calling them as a subroutine. Although this occupies more memory it can increase the program running speed. A set of instructions is identified with a MACRO edited. name, Irom then on TIM is loaded into the SC wherever that name is used the specified set of

instructions is included in the code without having to type 11 Commands Programs are entered with the usual set of 6502 instructions Unfortunately the method ol indicating

addressing modes does

and would have to be re-

deviate shuttly from normal

learned when using any other monstor or assambler The area of memory containing the machine code, or indeed any other part of memory, may be

listed to the screen or printer; only Commodore or equivalent printers are supported, however The listing is impressive divided into three net

columns. The first displays the memory address in both hex and decimal, the second shows the machine code stored in that address in hex. and the third gives the equivalent disassembled code in Dr Watson mnemonice

Monitor, the disassembled code may not be edited. The only way to alter code is to overwate it, or euter the built-in machine-code monitor. The monitor is identical to TIM (containing the commands S.L.G.R.M.X) so the contents of memory can be displayed in hex and

block of memory, and remains there even il the assembler is overwritten with another Basic program Machine code created by the assembler may be re located

elsewhere, or existing code can be 'opened up' to insert extra commands

The book

The whole spectrum of machine code is covered in the well-written and information companies



paperback of some 240 pages; each member of the 8592 instruction as us explained with the out of several examples and exercises. The assembler and the functions are described too, together with methods of sutering mechine code without the assembler (PONEs and DATA.

This is where Dr Weison offers a useful option to convert machine code into Basic DATA statements, with user definable program line numbers. These statements can then be tagged on to the end of a Basic program, or one can be written around them. The text even describles where to locate machine code to prevent it boung over mitten by Basic.

All good stuff
The 64's Kernal ROM
contains meny useful
contains meny useful
contains meny useful
contains accessed by your
own code, swoiding a loi of
hand work For example
characters cen be reed from
the screen very rapidly,
Lessons describing how to
incorporate these routines
are also included in the text.
memory may of the whole
Kernal ROM in an appendix,
together with a map of the

map of the 64.

For the more adventurous programmer floeing-point menipulation using mechine code is covered. This le is complex subject, but the suthors introduce it in a matter of-fact way using the Karnai's floating point routines and accumulators to

maximum effect.

In the arms chapter the
off-forgotten or glossed-over
subject of the Busic USR
statement is introduced. This
command in the link between
Banc and meohine code,
ellowing floating point
pursusters to be passed
from one to the other. This
subject deserves and
receives a clear explanation.

Conclusions

Dr Watson's assembler is to the complete novice and is

suitable for the development of short-to-medium-etsed programs. The accompanying text hook is excellent, written in a relaxed and friendly style and certainly very specific to the 84. Verdict? Furallent writes in money.

Or Wetson's Beginner's Assem Longuage — \$12.95 Honeyteid Software Standlast House, Both Place, High Street, Burnet, Herls. Tel-MASS 4419

Interceptor: Assembler 64

Assembler 54 costs a mera 57 — and the price shows it comes in a small plastic cassette case jest like one of interceptor's games. That means the instructions are crammed on to the tiny taley card. Whalit this is ideal for games, it's herdly suitable or adequate for a complicated the control of properties of the control of

The assembler ellows Basic-like source files to be entered with mnemonics preceded by line-numbers and arranged in order accordingly. Apart from standard mnemonics, lines may contain labels, line-number branches and

Labels may be substituted for numbers in all situations, and simple addition may also be performed. Line numbers may be used in place of absolute addresses or labels as long as the line number is

preceded by the letters 'GO'. For example, 'BNE GO100' meens BNE to line 100 of the source file

The only pseudo operand is BYT. Bt used for inserting numero dels into a program So BYT 67.68,33 would usert there three numbers into the object code. Note that BYT, and indies all other measures, eccept only decimal numbers. This will obviously slow down a precinced her programmer.

get HEX to perform the opposite function. That prohably means that when writing programs with Assembler 54, you can neither insert less into your work, nor get the program to convert hex into decimal numbers that it has already

sccepted.
Source progrems may be
edited much like Basic
progrems with lines being
edited, edded, deleted,
inserted and listed Listings
may be directed to both the
acress and a (Commodore)
number. And source files



Commands

However, Assembler 54 does provide two base-changing commands: DEC and HEX Or does st? Whilst DEC heppily converts decimal numbars into hex. I couldn't mey be loaded and saved, with both tape and disk being supported.

Once a source progrem is complete, the ASSEMBLE command begins the assembly process. But it's a slow three-pass rob which

assembles directly into memory. And there is no option for saving the object code

But Assembler 64 imposes a few infuriating deviations from stendard 6502/6810 replaced by semi-colons If slipping in. Also, and for no apparent reason, absolute numbers must be represented by the 'equals' sign; for exemple, LDA =

Altogether, Assembler 64 is

not a very pleasant program to use. The combination of unorthodox mnemonics and accepting but not converting hex does little to make the machinecode programmer's lot a happy one. Still, £7 is very cheap, but you could do a fot better.

Zeus 64 Assembler

The Zeus monster : slso bergain price - 19,99. D video style case and includes an instruction booklet

The monitor

On loading, Zeus tumps code monitor, and with nineteen commands, it's pretty powerful. There are commands, such as D (execute code) and R (registers) Then there's the not-so-usual and very useful and C (copy), which accomplishes the 'transfer

memory' function The T command steels gives a tabulated display of eight bytes of a time just like the normal moustor M command. In addition to the hex display, on ASCII display of memory can also be given. This is a real bonus when you're writing 40 of text. Then there's the P

command which directs output to a printer, not met a Commodors printer but any

more sophisticated because memory when storing source

The ossembles

Now to the assembler, which introduces usali by letting you open either a new or old can only re-open an old file of you can remember where address for source files is the start of user RAM.

assembler, Zeus creates ource files ordered in Basic-like lines But Zeus is

files — which also speeds up or disk. It also offers which works like the AITTO

extended Basses, ft also has a command to renumber the

Zeun is very flaxible in that it allows numbers to be expressed in decimal, hex or binery, ss well as in Labels cen also be used, end

ASCII directly included with 'C meening Commodore ASCH. The 'up arrow symbol represents high byte must be loaded with the high

and low bytes of a number Pseudo-operands available in Zeus include DFB for include numeric and string date in program

command will change the

string. As well as loading and saving of source files lile to be appended to the Actually assembling a

program is very speedy and code ere listed along with an appropriate error massage.

f could say a lot more about Zeus 64's features which I haven't even explored to the full yet. In all, this is a very professional package which has all the little touches that make an assembler a joy to use. For iust under a tenner, it is, ln my opinion, a giveaway. either a good monitor or assembler. Zeus has got to be a sound choice.





A FREE LIGHTPEN!

Yes a FREE Light Pani with every GRAPHKITI Graphkit is the ultimate in drawing!, designing! or painting! (using the light pen of course, which incidentally has a full 3 year warranty!] Graphkit will amonost other things ellow you to:

 Draw free handed on the screen anything from a Micky Mouse to your letest integrated circuit! With ell the fill colourand erase facilities of course!
 Sevelfoad your latest master pace to/from the

Or directly copy the drawing on the screen to the printer! And keep it for ever or send to a friend es a next rest.

post card!

Design your own colourful spites and characters
Play the games in the package! or use the light pen

In your own games in the packages or use the light pen in your own games/education/progrems

GRAPHKIT is evadable on disk and tape. Tape version is £1595 and disk version (recommended) is £19.95.



All you 1540/1541 disk users DMDNI is here at lest. Dmon is the disk monitor you have been weiting for it will allow you to

• read/write blocks from/to the disk

Odisplay and edit blocks on the screen

display and send disk messages/commands

• transfer your piograms from tape to disk or disk to disk or even disk to tapal • and moral

DMON comes on DISK at only FR 95

Do you use tapes? As you sick and used of washing for you programs to be Lodes/savel formion in the top? Then you need a TORNADOII Torredo ellows you to Saverload/Verify your Baser/laber/savel programs fisster than a CBM 1541 dais drive does I bus to popular demand Torrado now comes with new end more powerful commands place extra the command of the powerful commands place extra the command of the command to the command to

Do your Run/Stop and Restora keys often fiel? Oo you want to come out of those crashes? If Or get into those unbreaksble programs? Then what are you writing for, get yourself a SERAKEP! Rest switch end let your computer know who is the bossil Posebo can be conniciated to your machine in Beselon can be conniciated to your machine in Order to the Control of the control of the control of your machine in Order to the Control of the Control o



BSF CSL, 82 FURNACE DRIVE, CRAWLEY, W SUSSEX

Pessa sand me Tornado si E3 55 s my I andess chaqua POlcrash to the sum of £ .

Pessa sand me Beskes is £7 95 Name Computer Address

Pessa sand me Rom-Pile si £7 95 Address

Tel Greekte er £7 95 Tel Stateses

Tel Greekte er £7 95 Tel Stateses

Please aand me . Grephiet at E19 85 jolisió Please use this form and block latters only. All prices es microscene of pilop land order only, and C21 outrade values and me . DMON at E9 85 . SPECIAL 22 SUBJECT BANKET DRIVE CRAWLEY, WEBT . SPECIAL 22 SUBJECT BANKET DRIVE CRAWLEY, WEBT .

HATS OFF TO MEL





Please send me your free catalogue

COMMODIRE DA

- SOFTWARE Commodere 64 Sherlock
- Commodore 64 Panetuator

I enclose my cheque/money order for E Please debit my Access Card No.

Address

E	2	53	5		
		9:	5		
		9:	5		
		93	5		
		93	5		

- zanas
 - Commodore 64 Games Book 2 Superchange Your Commissions 64 Commodore 64 Games Book Commotore 54 Sound & Graphics Commodors 64 Machine Language for the

Commaders 64 The Hobbit

Commodoxe 64 Classic Advantore

Commodore 64 Harace Goes Sking Commodere 54 FORTH Commoders 64 A.C.O.S. +

Exprry Bate

Orders to: Malbonena Honse Publishars 39 Million Trading Estata Abingdon, Oann OX14 4TD

. . £14 95

£6 95

D5 95

D6 95

Trade enquiries welcome

+ p/p 80 Total

All pages include VAT where applicable Please and 800 for post and pack

taleshaped through an our 24-haur ansatona (3235) 83 5031







LBOURNE HOUSE!



Sherlock Be the world's greatest sleuth. Some reviews of Sherlock Spectrum 48K.

'Amazingly detailed No Spectrum owner will want to be without Sherlock ' Micro Adventures

'Another Winner in The Hobbit class. It's a complex real time adventure which will keep devotees puzzled for hours.' ONLY EXPRESS.

'Sherlock is an adventure which has yet to be beaten "

YOUR SPECTRUM

'Sherlock is a superb program and will provide many hours

(hours? months more likely) of stimulating entertainment."

PURSONAL COMPUTER NEWS

"Sherlock is an excellent adventure bursting with
atmosphere, challenge and inventiveness," requires
"Sherlock the adventure is about as devious as Sherlock
Holmes the master sleuth," review computing access

Castle of Terror is a stuming graphics adventure game self in the 1990's when and where 'Dracula' stones abounded. Find out what your mission is by talking to the right people But don't be fooled! Features include: Autilit-word 'English Language' style input 4 do superb, high detailed full-screen graphics, animated characters, special effects and sound. Hampstead is an adventure game for would-be social

"Very funny with a joke of some description round every

corner," TIME DUT

"One of the best adventures I have played. It is a must.

Super ' HOME COMPUTING WEEKLY
'An excellent example of a new type of game. It is a concept computer taken weekly

Zim Sala Bim. A totally new adventure experience

"It will have you bleary-eyed at 3.00 am as your little mind struggles to recover the treasure from the Sultan's bedroom and bring it back to your starring village." Convoicescensime. There are some decent puzzles to be solved and the program generated a considerable almosphere by the clever use of some excellent music." "Person, comprise continuous."

Penetrator, the most challenging arcade game has enjoyed tremendous success and now it has arrived for the Commodore 64

Review of Spectrum 48K Penetrator

"What really raises the game above its fellows is the revolutionary facility to completely redesign the landscape. That coupled with the practice modes at each level, makes it one of the most comprehensive arcade games? I sincusin uses

TEAGHER INVADERS

Can software really help teach your kids?

Why did you buy a Commodore 64 for your children? Are you worried that they use it mostly for playing games? If you've asked yourself these questions, you're probably the kind of person educational software producers would like to meet. The education market is growing rapidly, gradually convincing us that with appropriate software, your zapping-machine can become a valuable educational tool. Ken Young takes a broad look at ideas behind educational software and samples some of the most recent offerings for the Commodore 64.

by Ken Young

Practicelly every micro menufacturer on the merket has at some time or other meds the claim that their product has untold 'educational' potential. This has led to many parents buying computers with the sole intention of using them as e kind of hi tech replacement for that old meinstey—the Encyclopeadie Britannica.

The drawn of little Johney sprouting until of mounts of awe grey metter as a result of a few rights provided in the proved to the more than white thinking. But this is by no means a development in the short term the suppliers may sell less computers for the short term that will be more than the short term that will be more than the short term that will be more than the mether and less end less utterly mether than the short term that will be more than the mether and less end less utterly were that should have been thrown were that should have been thrown out long eag along with thermicals.

The Commodore 54 is in a particularly pool position to benefit from the past 2-3 years of experimentation by software houses in the education market. Meny programs that heve proved to be successful on the proved to Micro and the RML 360Z — are being converted for the burgeomy home competer asket where the only real competer askets where the only real competer askets where the only real competer askets where the only real stands of the province of the province of the tional software less.

puters are educational: they give an insight into the workings of computers at all levels, they encourage logical thought; they offer openings to on a ver-widening verlety of stimulating micro-worlds. But like ell tools their usefulness depends on the intelligence and integrity of the user



Mr T's Shapa Gemes - teaches shape recognition
The secret to getting educational

value out of your computer lies in keeping your expectations to realistic levels; don't expect the computer to replace a good teacher — that won't be possible for enother 2D years or so — but do expect it to be an invaluable addition to learning techniques already aveileble.

So what kind of progrems are there on the market and who are they simed

There's around about 200 programs of an educational nature for Commodore computers though most of these were developed a yeer or more ago and are now looking a bit frayed at the edges. The mejority of



BMX Number Jump - bike fun taaches



Cer Journey — good educational softwere programs are elimed at the under-12 year old age bracket mainly because programs for older kids are difficult to write and expossive to develor.

with one operations to develop, and the second polarisate lasts that make little use of graphics or sound facilities — than thus the second properties of the second polarisate lasts of the second polarisate lasts of the second polarisate last of

Perhaps the most Interesting development of all, end one which has all the signs of a continued healthy growth, are the simulation



Paddington Bear is the star of a zeries of educational games

programs that let the child experience e real situation and have to make e whole range of decisions to achieve

Teachers claim these programs are extremely good for 'cognitive' development. The kids just say it's e whole lot of fun But enough about the theory; let's load up some of the most recent offerings for the Commodere 64 and essess their suitability es aducational softwere.

LEARNING FOR TINY TOTS

Collins Software have come up with a very attractive renge of packages that

neetly supplement the best selling Paddington Bear books. The proprems ere reasonably priced at £7.95 and consist of a short story book, separete loeding instructions end

Each progrem addresses particular needs of early learners such as writing done by use of a number of programs on the one cassette that neatly doveted to provide meny hours of en-

Peddington And The Disappearing Ink is to be highly recommended it begins with a program called Letter that is the best implementation of word-processing for young learners I type in his or her name and is then helped to write a letter: the computer asks for the eddress line by line end neatly slots it into the relevant position on the screen. Ways of beginning or ending the letter are suggested to add to the child's use of the language

Letter is complemented by Typewriter which takes the child a little further end offers the choice of writing a theokyou letter or a 'having plenty of prompts to encourage different epproaches: such as five different suggested ways of describing the weather - now there's the mark

of a British software house. Another progrem. Paddington's

Problem Pictura, begins by asking the child to help our cuddly hero metch up. shapes on the screen (circles, squeres diamonds atc.) it includes colourful, clear graphics and musical rewards when the child successfully menoeuvres Paddington and his trolley to the correct shape

To help reinforce the use of the words describing different shapes the next program on the teps asks the child to guess the correct word to describe a perticuler shape; each error builds pert of a trein, which after ten mistakes shunts off and chundars its way across the screen. The sound and graphics will be the anyy of

Further progrems help the child to differentiate between colouis and to sort shapes according to shape and/or colour

The cream on the ceke is the finel program called Maseres which lets the child design his or her own drawings on the screen It's a matter of moving shape, and efter dipping the shape into the colour required, placing it on excellent simulation of computer aid ed design and could easily have been sold as a program in its own right

creetion of their Mr T Software, Mr T is less 'T'angible as a charecter but his lively T-shaped body appears giving help end assistence throughout. The range is now being expanded with each package costing £9.95. Here's two of the letest offerings:



SPECTRUM

SIMULATOR FOR THE commodore 64+

ONLY £14 - 95 I

IF YOU HAVE A COMMODORF-64 MICROCOMPUTER. THIS BRILLIANT PROGRAM WILL ALLOW YOU TO USE VIRTUALLY ANY SPECTRUM BASIC PROGRAMS WITHOUT MODIFICATION I

Just think of it! - your programs will think you really have a Spectrum I Because your 64 has a proper keybaard plus RS232, disk-handling, and serial part facilities, we ore thrawing in a lot of features of ZX Interface-1 * as well.

WHY YOU SHOULD GET A SPECTRUM SIMULATOR

- You can type in (virtually) all those Spectrum listings from magazines, as well as those for the 64.
- ! It's on incredibly cheap way to get all the facilities of another computer
- 1 And if you're upgrading from Spectrum to 64, your ald programs dant all become obsalete
- ! Spectrum Bosic is in mony ways easier and more powerful than Cammadore Bosic. Why not compare them for yourself?

FULL TECHNICAL DETAILS AVAILABLE FREE Tredemorks of Smaller Research Ltd.

FOR SPEEDY MAIL ORDER SERVICE, SEND CHEQUE P.O. FOR £14 95 (Access/Visa occepted)

WHITBY COMPUTERS LTD

7. CHUBB HILL ROAD, WHITBY, N YORKS. YO21 1JU

Tel 0947-604966

Mr T Talls The Time consists of four different activities which encourage femiliarity with clocks. The first, sented gradually on the screen. Hourly times are automatically indicated elong with melodious bell chimes Subsequently the child is esked to metch the positions of the bour bands on another numberiess clock. On successful completion Mr T shows his approved by showing all his breakden cino skills - definitely better then o

tick in the margin from teacher. Then there's Clock Numbers which halps the child learn to place numbers around a clock face And O'Clock brings the activities together by esking the child to move the hands of the clock to the correct positions for different times

Mr T's Shape Games Is all about recognition of different shapes - the child has to estimete if a falling shape is going to fit into e larger pettern on the screen and press the spece ber when it is in the right position. It requies great attention and good timing. Shaps Maker is e little more relexing, sllowing the child to select shapes and colours and to create pietures on the screen.

All the Mr T programs are vary 'user friendly' and era sasy to modify for children of different shillties. They come complete with a beinful Perente Headbook with full datalls about each progrem and lote of hints and tipe for setting up related activities. These progrems are to be recommended but you must be prepered to be very involved in the process of using them with your kide

Claver Cloggs (Argus Press, £6.50) ie a series of six different serly issening gemes. One of them is titled 'Party Time for egs 3+'. It has its moments: it begins with an invitation to the child to be the 'Clever Cloggs' at a party. The six gemss involve activities such ss keyboard femiliarity, matching shapes, counting and sorting. The games are somewhat primitive and of limited educational appeal. To make life difficult there's no easy way back to the menu once you've sterted.

This program would get the big 'nono' from most teachers and has little of marit except for its low price. Following the thems of the cuddly

cousin comee Get Ready To Read With BJ Best (Commodore £11.99). lt's an extensive, embitious package designed by specialists in the field of serly tearning, siming to introduce 3-5 year-olds to the initial stages of reading.

There is a total of four programs such containing ten different 'sctivrties'. A colourful BJ Bear Book with stories and gamee backs up tha on-screen action as well as a Parant's and Taacher's manuel consisting of full instructions and progress record sheets.

Unfortunstaly the program relies



GOOD HOUSERE IG

quite heavily on the use of the 'Megic' bytee' add-on unit which increases the cost by another £49.99, Commodore claim that the Megic Volce will be available in time for Christmas and that a renge of other programs which make use of its speech which make use of its speech programs of the commodore in the speech of the programs which make use of its speech of the commodore in the speech of th

dividual letters.

Thers is very little on-screan halp (whatever happened to 8.4 Bear?) but the package is very carefully put together and is aducationally sound. Parants and teachers will appreciate the fact that the computar sutomatically records the child a progress and an overall summary can be view-add at a moment" a notice.

LEARNING GAMES FOR 7-12 YEARS

In these days of the BMX bids boom and hi-tech menie, it's only natured that the games used to teach basic skills reflect the more exitting youthfuls sursuits — neel or integlinary, BMX Number Jump It Congman C7.951 is a lot sefer than the real thing with the added bonus that basic number skills ere teem tenfore saddle sognesses were not sementics.

The object is to move the BMX nder around a set of maze-jumping hurdles as ha goes. Only those hurdles which contain the solution to a maths problem can be attempted. It's certainly on stroll in the park, and life is not made assier by a less then frendly kangaroo whose sole aim is to box you aroundly off your bits.

There's flexibility, in that different types of mothematical work can be salacted at the beginning of the game; addition; subtraction; multiplication atc. However, the game itself is penfully slow and there's no automatic way out of e game if you fnot; e change or want to hand over to someone sile.

30 Hypermatha ILongman C7.951 is aimed at the child with dishrine Luke Skywalker inclinations. The child is placed at the controls of a rocket plummating through the hyperaphers. He aim is to keep on track by avoiding obstacles Of course the child must acily maths problems at this same time by adjusting the flight speed accordingly.

This game is easy to learn and wall designed and should prove supportive to maths work at achool. My only worry is that such programs are vary much eimed at capturing the imagination of the boys and has limited appeal for most gate.

Word Wobster (Longman £7.95) is espalling gener requiring considerable dextertly in avoiding word-wobbling alians whilst collecting the letters needed to make up different words. The game has a word bank of 1500 words which are divided up into five difficulty levels. It is possible to





modify the lists by inserting your own words.

The sound effects are suitably menacing and the game easy yet fast-moving enough to be very addictive. Word wobbler will be a favourite at home and school

Puntuation Pate I-Mil MacGabbon 59 95 is surely the most endealing program around it features Pete this Punctuates whose animated form runs around the screen helping the child with sentence construction He boots lays letters into capitals; sligs commas into place, and gently drops full stops in a the and of sentences.

To begin with, the child must try to contect a short piece of text. Once complete, Pete walks aupreib penting out (the animation is superb) penting out where mistakes occur. After giving these chances to correct again, Pete then runs around the screen to do the final corrections — no effort spared for the sake of correctness.

The level of difficulty can be selected — it iuns from junior acribe to super scribe — and a number of different passages can be selected. Unfortunately new ones cannot be created.

Another program called Wordfinder is also included. It allows children to investigate connections between words and to search for similars Words ere presented and a minu database of related words can be scenned This Theseurus of words can also be dipped into whilst playing the anadiam and handman games included. It's en excellent way of il lustrating how a datebase might be used To complement the program the suppliers include en immaculetely produced booklet with background information on the history of the written word and printing, ideas on writing a story, and games to play.

Fun To Learn (Shards, £5.95) is a pot-pouri of learning games counting against the clock, a hengmen type wordgame; an adding game, guess the word against the alien; 48 codebreaking from city to city decoding secret meeages that hopefully lead to the capture of the enemy. All the excitement of foreign travel and the unravelling of e constant stream of messages leave the child totally unavane that he or she is ac-

On paper it sounds impressive but the games are rather dull and unimaginative and arc unlikely to stimulate a child's mind for very long

Facemaker (Commodore £5.95) is a particularly imaginative program encouraging an open-ended approach to learning from parent and child

This child is able to use the computer to build up a face based on descriptions that he feeds in Bit by bit the face is created like a polica identikit according to the descriptions given

The creators have put pleatly of effort into making the program as powerful as possible, you can even secretly the type of hart to be won, the sample when the sample when the sample when the sample will be sample to the sample sample

SIMULATION SOFTWARE (8 YEARS UPWARDS)

There's no doubt that simulation software gets the biggest 'thumbs-up' from teachers (some even say they get the children too motivated) and go down equally well at home.

Typically a simulation program lets the child take part in a simulation of real-world events making all the necessary decisions and taking the consequences of those decisions as

Special Agent (Hill MecGibbon, £9.951 involves the child in e rapidfire chase around Europe in search of a killer spy who is gredually anihilating British Agents.

The secret to the game lies in consulting on-screen timetables of flights and sail departures and moving rapidly from city to city decoding secret messages that hopefully lead to the capture of the enemy. tually learning some very useful skills: dealing with timetables, European geography, translation.

geography, translation.

The booklet included is en excellent eddition with stories about spies, maps of Europe, and other games to pley. It's well designed and ettrectively colourful.

Ballooming (Hill MesCabbon, 19.9.5) is for the mar aeronautusel of heart it simulates the flight of a balloon over vietous tertain and teaches a simple undestanding of as flight. Unlike many programs tidoes not expect you to develop the skills required over-inght. Instack, you are given the option to practice or go on a test flight before attempting a full missing.

The screen consists of a small balloon and the outline of lead, which as you take flight, scrolls from left to tight across the screen. The flight of the belloon feels very realistic and needs plenty of effort to control properly — too much thrust and your cost to the sevent, too Intile and you cash to the ground bellow only to a screen to the ground bellow only to a screen to the ground bellow only to a screen to the ground bellow only to the ground bellow the ground b

Your son or deughter won't become Birtish Alliweys pilots overnight, but it's a whole lot of fun and bound to please incidentally, a teacher recent by told me that he cless had so many ideas from using this projearn that she had to ebendon all other work for two weeks.

Cai Journey I-Hill MeGübbon.
59,959 parts the child in the posteron of being the owner of a delivery service, delivering parcels and apockages throughout the country in true simulation style the child constantly has to make important decisions: what kind of can or van to buy, what contacts to take, what loutes to take the contacts to take the contacts to take the take the contacts to take the take take the take

There are a range of screens that can be viewed at any time (this "windowing" effect is at the forefront of much business software) showing current mad position, state of the bank balance, detrance and fuel pro gress charts. Once again the endosed booklet is well produced and contains a page of background information and fast in the produced for the contains and the produced and contains a page of background information.

The only falling of Cai Jouiney is that li's too addictive. You and you child will be hooked from the word go and you're unlikely to get anything else done for e good few hours. You'll be learning a great deal in the process too. And that's probably the essence of good educational software for youngstees.

 Next month, we'll be looking at educational packages for the older youngster — the range of 'O-Level revision courses from Longman

FIRST AID



for your 64

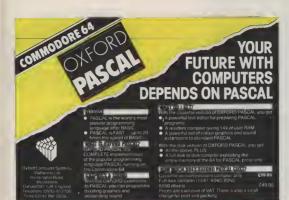
Computers, like people, are fallible. They need the right combination of code and care to perform effectively in the business or the home. And that requires first hand knowledge from you to create a healthy operating environment for your Commodore 64.

Knowledge about machine language, about the lesser known qualities of the 64, about the disc drives, graphics, and about the tricks and tips to keep your 64 on line. That's why First Publishing has now launched in the UK a series of high quality books and software packages to provide a complete health care kit for your 64. Commodore 64 users throughout Europe have already found it a tonic. We think you will, too.

For a brockers or all the Contendors (4 books and solvesto packages available from First Publishing, please fill in the coopen and send to Amasols York, First Publishing Unit 2018 Homeshare Road, Honeshor Park, Pagiptorme, Berkelming	957
Add to s Or roug Amanufa York at (073/57) SSM or Calco Software at 01-546-7756 Cot	FIRST PUBLISHING LTB

THE 64 SOFTWARE CENTRE 1 Princeton Street, London WC1 01-430 0954

Cashbook (Antersam) 1		, 40	T U U U U U U U U U U U U U U U U U U U	
Balles Ledger (Anagram) d 75.00	Business accounts		December Aide & Unition	_
Purchase Ledger (Anagam)	Bales Ledger (Anagram) d	75.00	Programmers Aids & Utilities	
Sabbook (Anagam) d	Purchase Ledger (Anagram) d		Jetpack Compiler (DTL) a	39 9
Select College (Ramstep) 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 14-50 1	BEBShbook (Anagram) d		Jetpack Compiler (DTL) c	
Section Sect	Sales Ledger (Ramtop) t		Carlmack 64 (Adomically of	
Accounts (Jemmin d	Purchase Ledger (Ramtop) t		DC Posts (Kurne) o	
Cashbook (Microsemples) Chambon (Microsemp	Accounts Package (Ramtop) d,t		Charles (Auma) c	57.5
Cashbook (Germin) Cash	Cashbook (Microsimplex) d		Champak 64 (Adamson) o	24 9
Final Accounts (German) d Final Accounts (Ge		64 95	Chipmon (Mr Chip) t	125
Final Accounts (Germin) d			Forth 64 (Audiogenic) c	
Graphic & Light Septembri		64 95	Graphice Decisions (Adams 6) (
Block Control (German)	Final Accounts (Gemini) t		Graphics Designer (Adamsprt) of	
Black Control (Germin) 1995 Master 64 (Suppensit) 1995 More applications 1995 More appli	Inventory 64 (MMS) d			11.5
Millaro Assembler (Supernot) t	Stock Control (Gemini) d			
Home applications	Payroll 64 (Student d		Mikes Accombine (Suppose to) a	
Principle Set (Supersoft) 1		34 95		
Section Commons Comm				
Cheshbook Manager (Adamsoh) d Mann Accounts (German) d 24 95 Mann Accounts (German) d 25 95 Mann Accounts (German) d 26 95 Mann Basis (CSM) d 27 95 Mann Basis (CSM) d 28 95 Mann Basis (CSM) d 28 95 Mann Basis (CSM) d 29 95 Mann Basis (CSM) d 20 95	Budgeteer (Adamsoft) t	2 95		32.2
Home Accounts (Germon of Month of Mon	Checkbook Manager (Adamsoft) d			
Mone Accounts (Germin) 1 1 9 96	Home Accounts (Gemini) d			
Home Office (Audiogene) Home Accounts (February 1997) 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14-95 14	Home Accounts (Germini) t	19 95		
Home Accounts (Fedomater) Agriculture	Home Office (Audiogenic) t			
Magic Desk (Commodore) c Database systems Magine del (Audiogenic) d Ma	Home Accounts (Fieldmartor) d		Supportick (Halling (Adapted to) of	
Database systems	Magic Desk (Commodore) c		Supthy 64 (Adamsoft) d	
Magne 64 (Audinogenic) Major 64 (Fight) Major 64 (Audinogenic) Major 64 (Audinogenic) Major 64 (Audinogenic) Major 64 (Superiod) Major 64 (S		37.30		
Mailpro 64 (Profile) 1938 1938 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939 1939	Magno 64 (Audiogenic) d		Illitrations 64 (Adamsoft) d	54.95
Oracle 64 (B.J.) d 152.00	Mailoro 64 (Audiogenic) d	75.00	Ultrapasic 64 (Adamson) d	
Practice 64 (MMS) d 1998 Matter (Supersoft) d 19	Oracla 64 (B) d		Unitysynth (Guicksilva) i	
Music Master (Superant) d 1936	Depotation of (MANC) of		E4 Contor (MMS) d	
Master Composer IAccess) d Master IACCESS Master I	Simply File 64 (Sumple) d			
Figure 05 (Savonal depth 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 1	Superhose 64 (Barrers)		Master Componer (Assert) d	
Database (Germin) c 24.95	Elegan 64 (Carpo) d		master composer (Access) u	44 95
Database (Semm) Common C	Entabase (Campu) d			
Spreadsheets	Database (Germini) c	24 95		
Papercilip 64 (B.1.d 99.3 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5 99.5	. (19 95	Heswriter (Hesware) c	79 04
Simply Write 64 (Simple) 1 40.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2 50.2				
Surpel Garden Surpel S	Busicalc (Supersoft) d.t	17 OF	Simply Write 64 (Simple) d	
Calcrosted Adv. (Handle) d	Busicalc III (Supersoft) d		Simply Write 64 (Simple) t	40.25
Early Califeredul (Hendels d 345 18	Calcresult Adv. (Handic) d		Vizawrite 64 (Viza) d	79.95
Variable 54 (Hesivarie) 4 595	Easy Calcresult (Handic) d		Vizawrite 64 (Viza) c	89 95
Practicals 64 (MMS) d	Multiplan 64 (Hesware) d	99.95	Vizaspell 64 (Viza) d	59 95
Espendial Balan Dellid	Practicale 64 (MMS) d		Educational & Languages	
ALLIN STOCK NOW. Callers welcome Total Callers T	Practicale 64 (MMS) t		Essential Italian (Dell) d	16.95
ALLIN STOCK NOW - Callers welcome Cham-Gon and Sturdarys Mail Observed (Arrange Control of Con		30	Essential Italian (Dell) t	14.95
ALLIN STOCK NOW - Callers welcome (10 pam - 6 pm incl Saturdays) The 64 Software Centre, The 6			Besieged (Sulis) 1	9.95
ALL IN STOCK NOW — Callers welcome (Para—Spring Startudays) Mail Other Chemas or PC — startudays) Mail Other Chemas or PC — startudays — startuday	dedisk tetane cecartodae		Wordpower (Sulis) t	9 95
1907	ALL IN STOCK NOW College		Time Traveller (Sulis) t	9 95
warrous subjects. Callists, Collins, Commodore! Warrous subjects. Callists, Collins, Collins, Commodore! Warrous subjects. Callists, Collins,	(10am = 6pm incl Saturdays)		Just a Mot (Sulis) t	9 95
Customark Process around homeodate-cognition	Mail Order Chemin or RO - print Categories		various subjects Callisto, Collins, Commodoret	
The 64 Software Centre.	Credit cards (Access/Visa) phone pryorite Immediate despatch	10	War simulations	
1 Princeton Street, London WC1 Tigers in the Singer KSS d 349 Tigers in the Singer KSS d 39 Tigers KSS d 39 Tiger KSS d 39 Tigers KSS d 39 Tigers KSS d 39 Tigers KSS d 39 Tiger KSS d 39 Tige			Facility (SS) d	24 05
Please supply the following stems	The 64 Software Centre,	- 11	Tiggers in the Spanists of	
2	1 Princeton Street, London WC1	- 11	Gennolstano (SS) d	
2 dry 6£ 3 dry 6£ 4 dry 6£ 1 TOTAL E 1 POSTAGE E 1 TOTAL E 1 TOTAL E 1 TOTAL E 1 TOTAL E 1 Submission of the submission		- 11	acoportique (33) ti	39 95
Carror Fight Path 737 Auroog 1 79.85	1 Qty @£		Flight simulators	
3	2 Otv . (u.f.		Flight Bath 207 (Account)	
4		_ 11	Interdictor Bilat (Supercort)	
TOTAL E Flight Simulator (IFF) d.1 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2456 2		- 11	Interdictor Print (Supersoft) -	
Fight Simulatori I (Sublegic d 4759 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150 150			Flight Simulator (IEB) 41	17.95
Publique Sob Flight IUS Gold of 1459	TOTAL £		Flight Simulator II (Subleme) d	
Name Address Address Publishers Manual Publishers Manual Publishers Manual	POSTAGE £		Solo Flight (US Gold) d+	4/50
Name Business Simulations Vss/Access Card No Commodities (Blue Chip) d 50 00 Oats Games 5000	TOTAL F		Heathrow (HC) t	
Visa/Access Card No. Commodities (Blue Chip) d 50.00 Baron (Blue Chip) d 50.00 Gate Cames	Name		Business Cimulations	7.35
Baron (Blue Chip) d 50 00	Madress		Countries Simulations	
Oate Games	Visa/Access Card No	- 11	Commodities (Blue Chip) d	
		- 11		50 00
A large assortment on disk, cassette and cartridge	Oate Signature	11		
			A large assortment on disk, cassette and cartridge	











8	m
WHITECHAPEL	WHITECHAPEI
ROAD	ROAD
60	£60





When you've got bored with your tea chest full of shoot 'em ups or your latest mega-screen adventure, you might cast a longing eve over those old favourite board games like Monopoly, Scrabble, Othello, draughts and Chess, Remember them? If you're a board game nut, you'll be pleased to hear that all these hardy perennials can now be played with the Commodore 64 Jennifer Coldsmith has looked at what's available some commercially, some for free.

Scrabble

Scrabble is such a popular word same, it needs no introduction Now, a computer version for the Commodore 64 from Lessure Germus is avadable at £12.95 Whether you buy the tape or disk version, Computer Scrabble comes attractively presented in a pleasantly illustrated box with a

Getting started

White loaded, Computer Scrabble displays a ministure per otherwise identical version of the ongoal board Committee Scrabble then asks a lew questions like the names of the players and whether you want the computer to play Then you are ready to m

Like the original, a maximum ol lour players can take part whether all humans, all computer or a morture of both. All the rules Computer Scrabble and they are explained in the manual.

When it is your form you can select one of the nase options displayed on the screen. These are quit, pass, presisum values. tiles, change, suggle, but and swap Qut allows you to leave the current came and asks you if you would like to play again. Pass allows you to miss your

turn which you would do only if you could not make a word and there were no tiles left to do a awap Premium tells you the value of the different coloured squares on the board whereas Values shows you the numerical value of the different letters of the alphabet

Tiles indicates how many Do (for example) there are left, the total number of tiles remaining is understed under the planer's scores. Change lets you change centain tiles in you rack but

suggle alters the order of the tiles in your rack. Hint helps you if you cannot think of a word and Swap lets you swap racks with your opponent. So in fact you have more features available to you than if

game One point, though, il you don't want your opponents to see the letters you're working with they'll have to turn a blind eve whilst you grapect your set

Conclusion

Computer Scrabble can rendece house of fur whether for one person playing against the computer or a family evening's estertainment And at least the dog cannot walk across the board and uppet the tiles! One reservation, though: the tape version of Scrabble takes about fifteen minutes to load You could have almost played a same in that time

Colossus Coloress from CDS

Macrosystems is one of a number of chees programs for the Commodore 54 has claims to he the best, arrong to meet the demands of Ironn choss players whether they're beguners or genuses playing bindfold. The program comes on tape (£9.95) and disk (£12.95) both of which are aftractivaly presented in a

A review of

Commodore

video-style case with a system. page pocket-sized manual

Getting started

Loading Colossus takes about two minutes from disk, and about four times as long from tape By that time, you could be well into a conventional game Still, the conventional algebraic notation is displayed around the border The move which Colorsus is considering is indicated to the note of the board. You can Change the colour of the white smares and the border to suryour preferences

By pressing the space bar a second screen appears showing the elansed times for white and ahead Colossus is thinking, number of positions examined the best line of play lound so lar and the score. The latter is divided into material and The score which relates to

muterial is fairly simple to rommehend For example a pawn down is represented by However, the score which relates to position is not calculated in decimal or 'pawns and a large plus lumine should positional advantage and so on But I don't think this is always the case: when you muse your opponent the score gives you a large material advantage (62)

and a manus figure for position! Playing the game

To enter moves you can either



MAYFAIR € 400

MAYFAIR

SUPER TAX

PAY £100

\$ 220 PARK LANE

£ 350





dice

board games for your 64 ----- by Jennifer Goldsmith

the the cursor or the algebraic noistion providing you remember to SHIFT the lemora Both methods are clearly explained in the manual. If the move involves promoting a pawn. Colorsus will ask Promotion piece? Colossus is familiar with the 3 fold rule, 50-move rule and Salemaie as well as with Chackmake

The level of difficulty at which Colossus will play is determined. by the time allowed per move or you play 'Tournament style' That means X moves have to be played in time Y followed by a secondary parameter of A moves in time B The Average Mode asks the time per move. This can he anything from one second a move to 59 mins 59 seconds a move So it's useful to bightning cheer (ten seconds a move) and

Mode three needs the time for the total crame useful for playing five-morate obess. Mode four makes Colossus play at the same rate as you. Then there is the infinite mode which means Colossus will continue to look until you interrupt it, it finds a mate, or it has searched ahead

Lastly there is the problem mode which has two subdocument. One sub-division will find normal mates in up to seven moves whereas sub-division two will find self-mates which is a major advance as many good chese computers do not provide this facility! There is no facility for help-mates (se you help your opponent to mate you). This may sound strange but help-metes do occur in problems as do salfSpecial features

The Alter position' command will let you set up a particular position early and if you make a pustake the original position can he recovered by pressing the 'G'

During the course of a game you can step backwards and forwards, so you can check mutakes and even replay the cume Colorate can also play nominal study and you can remian the whole of any game at the speed you want. You can even set the elapsed times for each inde and if you want to play a fored then Colorsus will congress to make sure you don't cheat This is also useful if you ware to run through the moves to

on to a certain position. Finally non one plan 'blendfold' chase he making the hoard go invisible Naturally, you can save the name to same or diak, not rust from the stage you have reached but all the moves from the start to the correct more (may 120) Rut there is a problem here only one came per dirk can be stored as Colonius always allocates the same name for the file. If this could be ammended so the uses allocator the frie name this facility would be perfect. The manor snarr is that when you save the position was do not save the line of best play, which would be meful expectably when you have had the machine minimit for

moves of the game Conclusion

Colosens is a well designed program including many etures plus comprehensive openize theory not seen un other home micros and it must be the best chess program available for the Compandon 64 and of £9.95 on tope and £12.95 on disk, every keen chees player should have a conv. It is simple to use yet more fon than a board as you can learn so much more and, of course, you can play games whenever you want









RP DOL ST £200

22 00

PINERP DO

BOND STREET

BGND STREET

320

COMMUNITY CHEST

€.300

REGENT

£300



Draughts

This hardy perennial dame has been written for the Commovious 64 and is available on tape from Superior Software for £7.98

On loading the program, a which rules canton is displayed After selecting your rules such as most take all the arrest displays various opposes. When you have firmshort unth the options the board is displayed. annotated like a chess board Elapsed time for each side and how the competer is the kind is displayed as well, on the night of the arrest

Playing the game

Like chess, you can set the level of play and the games can be saved loaded and replayed The colours of the vanous parts of the screen can be altered and the moves can be invest either with the cursor or strongh algebraic notation. Sound is used at appropriate times. for example when the computer moves pieces or when you make an illegal

Conclusion

Draughte is a well-writen program that provides more facilities than the original board game Bur, like att computerised versions, you don't get that feel of satisfaction when you've tumped over a whole row of Your opponent's pieces

Kensington

Kensington in aveilable for the Commodoze 64 both on disk and tune from League George of £12.95 Whichever you buy, the game comes attractively presented in a box with a 16 nege manual The object of the game is simply to try and occurs all six points of a white hexagon with your own colour stones.

On loading Kennington displays a pattern of adjoining triangles, squares and bexagons Colour is used but you cannot change them because they form part of the program like

in play

Only two players can participate whether both human, both computer or one of each You are requested to place your stone on the board, which you do using the cursor controls illustrated in the manual. The first player to form a hexagon wins During play if you form a triangle you can move one of your opponent's stones and if you form a square you can move two of your opponent's stones

Conclusion

It is outle an entertaining enforable name at the beginning but now I can heat the computer on top | evel and | have not played more than half-a-dozen times However can last from 5 minutes to

against an emonent the came anything up to S hours Also available from Leisure Genius are two more old

classics: Mastermind and Claudo PUBLIC DOMAIN

SOFTWARE Otheilo

Othello, like Chess, is a name pyolypg strategy, spiple enough to take a minute to learn yet to take a minimize to really yet capture your opponent's meder by trapping them between yours Othelia comes on disk and most probably also on tape. And you can out it from the library of user groups prouding you are a member. Two versions are available, human versus

Load and tun

The board is like a chess board but wish the numbers I to 8 arranged horzontally instead of vertically and the letters A to H vertical instead of horizontal Moves are made sciently, in fact sound is not used as all - even if you make an illegal move! Screen colours cannot be changed either.

The computer selects who shall move first. When it's your turn to play you show the computer when you want to place your piece by entering the cell reference, for example 43. e6 II when it is your turn to move and you are unable to capture at least one of your oppoints's pieces then you press 0 If you try and make an illegal move the competer lets you

When there are no more cells to fill or neither player can make a capture, the same ends and the computer stokes the women and the score for each player. No running score is shown

Monopoly

Monopoly has been adapted for the Pet and Commodore 64 under the name Monopole Like software but the English version is only available to members of the user group ICPUG. Monapole is available on both tape and disk. A manual is not needed as the game is self-explanatory for those unlaminar with the original board game

Do not pass an

On loading Monopole and after a bruel introduction the board in desplayed. It is identical to the omenal board in polony and design, the sole difference is that the property names are not visible. You much shink that's a problem Not really, because when you land on a property the property name is immediately deplayed on the screen and information are available of accarnic screens

To zoil the die, you simply ncess R If you want any information or you wish to carry out a transaction, such as mortgage properties you press T and various options will be displayed. You then select the option you require and the screan will then display the required information. You can then select another option or return to the game

Il the property belongs to another player Monopole automatically transfers the rent due and alters the balances so there is no squabbling

Property development Sound effects like the sirens when you go to sell are a big advarrage over the board game However only two players can play which means that it is no longer a family game. Also when building on properties you have to distribute the houses as evenly as possible rather than deciding

to have loss houses on one property and one on each of the other two, for example Conclusion

The original adaption of this came was done for the Pet but the version for the 64 has the advantage of colour and sound It is still an exciting game which will keep you amn

for house and as it to conductable free of charge what more can be said for it? The programmers have done a very good job

Mastermind

There are two versions of this name, one using colours and one seems muchane I will don't with this marriage upper colours last This has been written for the 64 under the name Master Guera and like Monopoly, is public domain software. As the instructions are simple and are displayed on the screen there is no need for a manual.

The obsect of the game so to work on the secret code which the computer has generated A white peg indicates that you have miessed the right polour but the wrong location and a black peg indicates that you here both the right colour and the correct

The colours are represented by letters, for example 8 for red. Y for vellow which seems a pity as colour graphics could have been used. You have a maximum of ien attempts at guessing the code and of course you cannot chose by negrang like you can with the original board game When you have made ten attempts or have been the code the master code oppears.

Conclusion

The is a good imitation of the priminal but it is a pury that the colour, graphic and sound faculaties of the Commodore 64 heve not been exploited to the full Bar lor free, who can complain? The version using numbers has been written by Commodorn Educational Software and le similar to the colour' version but this version has even less colour than the former and egain, there is no



COMMODORES VIC 20 TITLE Publisher Computer CRMSA Ghosthusters C83654 Daley Thompson's Decathlos Beach-heed CRM64 Chiller CHIMBA CRM64 Saicide Express Wanted Monty Mole СВМ84 International Soccer Zapotos Bruce Lee CRM64 Solo Flight Summer Games CRM84 Eureka BMX Racers CBM84 Blue Max CB3664 Jet Set Willy Bionic Granny CBM64 CBM64 Lazy Jane CBM64 Tornado Low Level Danuer Mouse in Double Trouble Creative Sparks Buschback Manic Mines Cascade Cascade **CBM64** Mastertronic TRM64 Zaxxon CBM64 Zete 7 Scrabble Leongre Games CBMS4 C8M54 Vegas Jackpot Football Manager Addictive Games

Albgatz

Flight Path 737

CBM64

•		Top 20 G	amest	orthe64		
۰	TITLE	Publisher Comp	pulex	TITLE	Publisher Com	puter
	Chostbusters	Activision	C84	Selo Flight	Access/US Gold	C84
2	Daley Thompson's Decethion	Ocean	C84	Summer Games	Quicknilva	C84
3	Beach-Head	Access/US Gold	CE4	Eureka	Domark	C84
à	Chiller	Magrettronic	C84 14	BMX Racers	Mastertronic	C84
9	Select One	Gomputer Records	CE4 13	Blue Max	Access/US Gold	C84
G	Suicide Express	Grerolin Graphics	C84 R5	let Set Willy	Software Projects	C84
7	Wanted Monty Mole	Gremlin Graphics	C54 17	Buonic Granny	Mantertronic	C84
a	International Socrer	Gommodore	C64	Ternado Lew Level	Vortex	C84
g	Zaxxxon	Access/US Gold	C84 19	Lazy]uee	Termunn	C64
Ö	Brace Lee	Accress US Gold	C64 28	Danger Monse in D'hle Tr'hle	Creative Sparks	C)54



STELLAR/

FEATURING SUPERB 'BATTLEZONE' ACTION!

And Car Dracon, Supreme Overload of the Andrean Empire, has devised war on the Teren Empire, prompting Earth is obtain to depict the entire. Items Effect to intercept the Andrean Amenda. A great of the Cartes of the Cartes of the Wagnits, a gene discovered the existence of the Wagnits, a gene discovered the existence of the Wagnits, a gene discovered the existence of the Wagnits, a general discovered the existence of the Wagnits, a general discovered the existence of the Wagnits, and the wagnits of the Wagnits

an entire ground assoult force to Titon, Saturn's largest adealite, as the proble to a measive invession of the state of the problem of the problem of the the PAVEN, an experimental and problem of the the PAVEN, an experimental and problem of weapons, You must plant the craft through the seven weapons, You must plant the craft through the seven Warpinke from Archana to Tatan, destroying tise guardpoots on the way, in order to clear a path for the return of Earth's forces. A suicide mission? Or Earth's only hope?



e Street, Birmingham B7 4LY. Telephone: 021-359 3020, Telex: 337268.

ONES STKINGDOM

The artifact is just too lempling, Sure, no one has ever returned with it had they didn't have your braits and courage. This icreasure is worth any fals. This icreasure is worth any fals. This icreasure is worth any fals. It is not to the properties of the progritter of without oil and this what that could do five your career, for the university muscoum, and for your bank halance! of rouning, they is the small matter of insiding it. The most developed the ever the part and agustics you've ever faced, You'll need all your sa and during just to sourine.

and daring just to survive Then there's the ancient curse ... but what the heck: if it were easy, it wouldn't interest you, Dr. Jones—would it?





Dis in the U.K. by U.S. Gold Limited, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Telephone: 021-359 3020



SCREEN SCENE



Rocket Roger Commodore 64 Price £7.95



There's come and become become been a loyatick can I be used simply because there are log many operations to per accuracy of unward thrust with letinal movement whilst pumping out laser buists Thirty four-way scrolling you must be entered to acreel a

you quiel for some time, then their ere

e eractice made, just to come to mose with set-pack fireht (and free fall) to called for Meteors are no respectors of Your sensibilities and quickly est up lives To collect the 98 crystals de manded will require all your skill, parte and experience Above ground all the number are

zanneble down in the hurdle-honners farritum school, paliolling endiolos era invulnerable what's more in some



Di's Rahy Commodore 64 **Bad Taste** Price £6.95

> Presentation see Sidli level 800

This one comes straight from the heart of the outter (press). It's a five part precethe wifted that it's outline may well find himself on a one weylour to the Tower

The desirny of the nation is in your hends. You must help the Royal Couple

Inquit's not 'Careless Whisper I Screen one is a topic-turvive retion of Space Invaders, with the meanits is nisced by notices, and the mother shou

by a neppy. The potty bombs bring a whole new rimsension to the idea of SPLATI Though it edds weight to the ar guerneral that royals are just like you

Successful retalistory shots to the notty bombs inumber two screen, you micht sax) with toder rolls birms you to the next stage. This is where it starts cetting e intile naughty. You must lead If avainthing pour according to the laws.



Eddie Kidd's Jump Challenge Commodore 64 Integration Price n/a

Presentation 89999 Chillian Issa laterest eee" Valuelos mozav ####

Tony Hart, Lee Maiois, the Strenolers Thompson Twins, Shakin Stevens, the So it comes as no surprise that sturt. bite rider - Eddie Krdd should went to Eddie Krdd leep over several cars you sumportine bandwagon.

Eddra was at the Personal Compute World show in September in all his gear signing autographs, and assuring all and sund; vihal he was really "into The last that Eddre was brought in for

Yet another orlability lending his name to computer games - in this case the

late Bruce Lea - tha most famous expoentio this secret of eternal life

The man who holds this secret lives high up on the summit of Mouri Fuil m. Delermond to stop Lee from seeking on audience with the wizord are the Nime and the particularly nesty craft

cume is an excellent one with some re-The rdee of the game is to success-

fully jump selfer as possible and mem tam control of thabika on lending Refore you can attempt the classic

must first clear a row of oil beings The tribe and the rider are controlled seperately so that the computer is act rno as the motor take and you are actu-

The function keys provide the gear controls - F1, first F3 second, F5 thed



Commodore 64 Price f6 95

> Skillevel eee fatereur esa

ally ndmort. Bruce will need all of his worldy, troks

loughest of his apponents are the Nmuwho can dodge and kick back. The grant green Yerno can be taken out with three swift kicks

Both the Yerno and the Ninse track you throughout the twenty screens of

To move from one level to the next



Commodore 64 Price n/a

Presentation 444 Skill level, coo laterest 999

Dielbs is that sere there these days - e. Play commances in a maze at the centre of the Drelbs Kriedom The maze

is made up of swing-gates that change, wreck, your, square, building, prog. their position as you move through The object of the come is to make as

clasmo the cates on the three sided squeres Once a square has been 'dosed' if will begin to pulsate. You

Out to stop you are the Trollabours

who can elso lip gales. The Trollaboers are the evil destroyers who are out to semme. Your only defence against the completed sausses.

Once all your squeres ere complete some of them will turn into Dreibish windows - you can hop through these

writy-nity. Security taxans, elidas and conveyor belts will provide headaches especially as the Zone Mester is ready

In e nul shall Rocker Roger is en improviding obstacle strewn quest for because with a complement of intergel lects intruders likely to provide hours all engrossing entertainment But only effer you have partected the delicacy of be content to explain the whole play

Rocket Roose is further bond that there is plenty of programming telent left at Sheffield-based Alligate despite the depending of one Tony Crowthan

Even if Tony's leaving has not had too

sangue an effect on the lortunes of Allosts it has made them slightly paranoid about talking to compute meas One Alligate programmer appar entity got the idea of brenching out on his own as a result of the magazine in

Deforther externs more he

She must fulfill her engagements, by

avoiding or shooting persistent prese hounds the game might yet go down Well at Buck House) Finelly it's time for that med dash to the hospital years some ing maze with all obstacles. Finally out hercine is forced to negotiate a ladder complex evading a synnge and catching the baby as it is disapped by a flight to use the NHS 1

Yes, it a sally this mucky. WE ARE

causes the blice to swerve to one side at low speed or can be used to abort a rome at the last moment if you ludge that your epand is not sufficient to deer

The key to success in the jump game e to judge the epzed acquistely to get safely over the obstacle

Eddie can be made to stand, less forwerd, crouch down, or lean back in arder to belience his bike

The most excessing part of the game is when you tries off end sail through the en wetching those care cruise pest be-

As well as ourshing and actions the energy Bayon can also be made to letto.

One great strength of this come is the options - there are lots of them. You can pley equins the computer, or an opponent, or two of you can learn up to lake

Points sie awarded for various 76 points, e kick is Worth 100, laking e lentem earns 125, knocking out a Ninja sa worth 200, and knocking dul e Yerno.

lytes who have englaved the Dreibe has on instant. If you are successful in steel down to you to fees them - by meking contact with as many Dielbe as possiscreen. Only when all the Dreibs have ble. The Gorgolytes attempt to push been freed will you discover the astreof the Mystery Lady

Once you have been to the bonus can then get onto the bonue screen. The reen the round starts again. There are points you earn here will go lowerde eight different rounds altogather Sep free no ell the Drelos et il held capava phise, Ruby Emereld, Topas, Pandot,

There is one other way to get onto the Lady Her beautiful, but sadligge will agpasi in one of the Gorpolyte squaree for

NOT AM ISED and neither if seems are those concerned - elliws could set from Buck House was a teras 'no comment' This came is los bad taste onthusiasts

Herrilton supporters will levert The royals have so les avaded the st tention of software houses - about the only pert of the publishing world that has an lay sot that to remaining the cou sity. It can exactly only be a motter of time though before we will be made to crange at Boyal advantuse games

neeth you if you should clim the less on Edde felle and the bike some honelesse gut of control as breeks squest and you can hear metal hitting matel

Apen from the jumpe it is elso poss his to elternot other stunts - such as wheeles. To do a wheele you simply burld up egsed end pull back on the

spystick to make Eddre bull the hendle Although the graphics are tramendour I'm not euro there is enough of e lasting challenge to the game That

slight worry ande it is still bound to be e great hit with Eddie Kidd fans eams 400. Every time you enter a new

room you get two thousand points The largest bonue of all is awarded

filling the wizerd - e messive 300 points. An extra Bruce is awarded when you wash 40 200 points and for every subsequent thirty thousand points ifter

Bruce Lee was the first of US Gold's settly big hits when I was launched on the Aten earlier this Yesi. Now 64 pwt-

SCREEN STAR



Fighter Pilot



of its between

complexity and game-play Spitfing Aca e British geme - has none of the sophis ticated controls of the Digital game and none of the play appone that make Fi

es easy to get into but difficult to meste naries the Birtish hite heve been few There are no less than sodeen drifts ant commends that if a possible to exe American importers with games like gute - giving some of the real comple Beach-Head, Bruce Lee and Boulder-gyof flying a ret fighter

fesh baye been cleaning up in recent Rohas Pifot's programmer Dave So it's race to see one British com-flight genre - having worked for several sany beating the various Yanksoft offer- years on computer systems for the age in the doc-fight to produce the best Royal At Force.

The flying training option position The company is Digital Integration your arroraft at the threshold of the run and the game is Fighler Pilot - now way base facing due North Take off in aveiable for the 84 after its Spectrum slightly easier in the mode then in som raion topped the games charts for of the later station.

weeks on the this year The main en byment of Fighter Pilot The same features all the suparior comes when you have mestered the sound and prephics that we have come controls and become a competent prior to expect from Spectrum to 64 conver-You can now take the USAF F15 Engle

Flight controlle and game play options great strength over Traditional flight are many and valued. You can practice simulations

landing - one of the trickies men- in this option you are scrembled and You en computer and rader tall you Also you can ettempt blind lending which simulates lending in the loc. If the position of the enemy succept any is does not sound difficult enough for you set on freenept course. The dag rou, you can elso edd extre hazarde file fight is on at less then a mile distance and 5000 fast altitude Combat only

To activate your guns, press the takes place at this elocude. To turn any pace be: - although you can only use run - which will sometimes be neces heas in combat mode. As with all the sary when you have sustained to other modes in the game Combet mode much demage – simply diverbelow th flewee short grante search 5000 lest level or distance yourself at Treining mode puts the enemy at a morether emile from the ene

disgustingly unfer disadventage - you . If you sustain four direct hits you are can fire at them but they cannot fire finished. All hits are registered by a beck. If you just like biseting things then change in colour on your radar. If you ou can have great fun with the training do find it necessary to turn and run to made - wetching the enemy dirft into get repairs the enemy will lock on to his our sighte end then pick them off like original target and set out to deal

ying elephents. Your ground installatione
None of the other flight gemec! For my money fights Prior is the be safed came close to Fights in Prior for flight geme nowaveilable for the 64.

SCREEN SCENE

Orpheus in the Underworld Commodore 64 Sterling Price £6.95

Presentation BERRY Skill level #### Interest was Vulue formancy *****

and a Hellamic Hero "Can-Carl" is the the ourface dominant tune or you would of course. Skills, recurred, are accurate, well expoci from the tria but two other yarg- trinod feaping with hopping and duck 28 gravidi some varimon

Ous barrier of Irreballs Each subterra Intedoerne

This is Petfulk but with Edvotran decor mean screon is the equivalent of two or

md, boundy essential adectness of The 120 screens are lattered with vary rope startinging doesn too armss either OUR combinations of hazerds garnered. By taking advantage of the CHEAT know from the following pris, boulders Irall- it is possible to scroll your way through ing or stationary. floor traps, white all the screens without losing a life, ad birds, poisonous green plants moving the hisroglyphics and months os saws and the assential magrovanishing you grob the point giving goodies. A



Stock Car Commodore 64 Micro Power Price f6 95

Presentation comm Skill level Bass Interest Sees Value for records: #####

An upraised sophisticated example of all you have to do is steer and chorus that personal filter for "Volcame, Typo geor ti-Yourself Bunndden Games for your 54" books Crash, bach, steer, skid and with "Congratutations" still ranging is

There are four ears on the track with the time the 64 controlling 2 or 3 idopending on how mony mare humans one disympt

Hoving blustered your way to victory accolerate your way round 6 different your ears it's time to enter the Hall of tracks having safected the skird factor. Fame spelling your name with the ard of overall speed and number of laps be- another car Rollokmo fun for those of form the aff. Oil patches can be splashed you out there who get bared with the about for tess traction, but added fun. Scolaratic getting bent and buckled all



Chartbuster Commodore 64 Alligata Price £9.95

Presentation sesses Skillleand same Interest ORDER Valuator money *****

Devastatingly good value, comprising sron of the oreade classic. Bug holos and five games on one tape ford they all bosh the red monsters when they follow loaded!) Stagger is a 30 screen Pterform. Take too long about it and they less out

Purple ducks and bouncing bombs Bug Strater is a pseudonym for Cen populate the trickier levels. A really speed and is as good as only I've seen good grmp Parro Planet is a straightforward var you

indulgence. Collect all the keys and ondchange-colour Openthe safes on each and every frame Eagle Empire sends flocks of Kriter Watt has you flying a soucer phoenixus and waves of englis to do around a cavern copping light bulbs, battle with your space ship before you avoiding walls and zagonio dolphins gettle kepowithe empergrinhis eactor which lesp up from scattered pools tress harmless fun for coppers

with hordes of invertebrates to tormen



Frenzy Commodore 64 Micro Power Price £6 95

Presentation BERRY

Valuatormoney *****

Skill level #####

Interest Bonne

rod with a fleed of entruin

slow (green) and fost (rod), the former sorbing You really should have this in worth more points. Each time contact is indurcollectron? made with the screen edge or previ ously constructed trie. Brigo! the col

Occor Star has surfaced again, this time outing routine shades in the captured with the entisted support of "A Whiter area Of course, should the whitzing Shade of Pate' Completely out on its wand clobber you during mid-line you own scenario wise the player guides a lose alife sort pays not to botoo greedy module to partition the screen, trapping (but of course it's no funit you're not a manic stick within the last 5% of free. On lator screens "perimeter chasers screen or better still drowning the ribid frunt you and the stroks multiply. The fure of this game is inexplicable, it's There are two modes of progress indiculously simple and yet totally ab-



Hooper Commodore 64 Calisto Price £7 95

Presentation BEE Skell lawer our Interest *** Value for money ***

new A split second after the first base Rondo & in Turke, rost pasy Wolfgang has been transferred from the sc. Amedeus cumulator, I sussed that this game was. This variant has you collecting with a direct descendant of Crazy Parmer beans as a mission in life Competent

that's the game where you dish round with dego reserves of tribulations to try a and colouring in the sources whilst your skill firstein an evenue and mobile perfecting your skill at avoiding the con-speeds, but not the best avoidable. So ticulor meanies selected from the day's what's the point of doing it? More origi nality less repedding of old ideas A supple wrist is essentral or failing planse, software houses that, Paul Daniel's tingers lait 20 of



Choc.a.Bloc Charlie Commodore 64 Lothlorien Price £6.95

Presentation 8888 Interest BBB

Stell level 88888 Value for meney sees

this two-screen super toughte. The set no is like Pency but the niot is midviduel. One chem is trapped in a the citra helpful resident meanix wharehouse. To escape he needs to create his own doorway by collating four ournie blocks, which are embed ded in a maza of useless white squares

whereas others can be given the blast scratcher, my progress was paminly slow, except me while I practice. For extreatment Threatment of accomisener gy draming its is contact with those partsonly dramis carelessly released on mayora

Renuted by there are 16 taxels of play muthepurple preces of Lega Obviously they need persons in or avording as do the time bombs left by

> Gold blocks may be prehed through your ewit for hones pounds perfor to your departure to the fand or whirly whee?s. This tricky blighter is a real head

COMMITTER STATE OF THE STATE OF

Strike Force Commodore 64 **Bubble Bus** Price £6.99

Presentation Skillievel *** Interest *** Value for money BREE

The title page deprots a tank and for some rinknown reason plays the theme Irom Mash From then provide anside the tank looking out along the gan bar reis, servicing the horizon by strolling the serven at writ. Although the Ballistic trajectory of your fire is not as convincing as Beach Head or 3D Tank the same your HO, scroll, search and destroy two tools effectively you control the height at which your shells explode yra markers as well as the direction

In the first wave scouting helicopters

the movement believes These or marely paving the way for a bomba raid on your base encage those loss on organ han Asterma ther bombs haven't nuthfied your defensive capacely your netto take on enemy vehicles in the final stage, as they swerm through

The difficulty levels IS larmes to set may be limite funed to trace Graphics and sound are ok but not on the same have to downed as they chatter across peak as Beach Head



Warlok Commodore 64 Callisto Price £7.95

Presentation **** Skill level **** Interest: **** Value for money: ****

Ireshichstlenge Well Warlokhas briten threeds and indestructible droids are off chanks from its familiar forebear, some of the delights that awart you in thoroughly chewed them up and regin ortated a bunbly interesting sour-off Up to four stages can be selected if

Munimozes operfed by birdoing tases

OK, you re a Scremble fan but feel the screens gittering bounding cannon old timer needs revamping to present a balls, space sprifers(2) dangling from the ravern And, yes energy has to be supped in the time honoured fashron The graphics are not from the very certainly don't printend to have mas-indige of medivation but from what I've tured them) with hizzards presented diff seam so far they deserve the thumbs no lenerally enough from Scremble to war. Stiky scrolling and percussive sounds rant (is devotees lurching out to grab a but no "Dance of the Singar Plum Fairy"



Cave Fighter Commodore 64 **Bubble Bus** Price £6.99

sentation sees Skillerel #### Interest asses Valor for money 8988

Jedge, as opposed to a platform, hop ping game

startle (well, amuse) you. A primoome- case the disposition of the nashes to enter, activated by the fire button controls. Tirely randomised. "Changis of Fire" the height of your leap, an important and vimous squeaks are processed by consideration in regions with restricted the SID chip in this chunk of addictive head-room

By allowing yourself the luxury of 95 Opposer areas to Event are more position lives, it is possible that all the 31 preagged edges, snepping jaws scouring selectable scrolling caves will reveal the ropes and conglomerations of sprttheir secrets to you. I suppose this is a long alrene. Some of the light squeezes appear to allow one pixel width for error Precision is the watchword As-There are ropes to climb leaps to be you would expect, the cave layouts get made and 16 alivn cavern-creepers to progressively tongher, white in each



Ta77 Commodore 64 **Bubble Bus** Price £6.99

Presentation #### Skri level *** Interest IIII Value for money sees

Bug blashing has proved to be a rich een for programmers, this latest nugger to be mined is slightly different rom the norm Your after ego is dumeed in a succession of ten rooms each well pappared with mini bugs and mega bugs, very mobile sprite hasties whose behaviour, form and tempera meet vary with each cubicle

Limpreen rounds of ammo plus a renewable reservated smart bombs are at your disposet, giving you the whereasthal to visporise everything obnoxious before the advancing walls wreck havoc perspothered?

with your overall dimensions' After cleanne each second room, up pros a bones screen, drats and bombs to col fect, but again beware of the marching

A good blast am-away with an extra adge-of your seat, rightmare add on Should you lend it all too array there are enother ten super rooms to tande with So keep your thumb on the button and your eyes on the screen if you don't want to end up as flat meat. Good fun but with no new ideas. Are screen zap.



SCREEN SCENE

Kokotoni Wilf Commodore 64



Highly individualishe, offbest - would being the key to the next enorth. There even _ according to your viewpoint is something strange about fluttering Working your way through time zones exound the statuesque dinosaura ionly is a sure-fire interest grabber as is the the small apecies move) but this can be challenge of mestering the ideayn-accepted as "video game logis" Quite crasses of feether powered flight. But apen from the wild world on the surface could make this gemen base

scioling obstacle course avoiding the fivera touch of just about everything animate if you are deducated enough then or otherwise while endeavouring to there is plenty of acope to stretch your anatch a complete set of taliamene, this wings

performing just one lask repealedly there are twisting coverns optenty most of the tight squeezes seem virtu-You have to flutter excland a four-way ally impessable to any but prayious



Jinn Genie Micromega

Commodore 64

Skill level ***: Interest: IIII extinguishing them also beware of the

An Arabian Nighta-style, four part pol- spider (there e always one!) who may boiler Beiors you can finally fies anim send you reeling. With the end of your prisoned sage from the custody of an stun whatsal the brightness finally evil genie there's some travelling to do athines forth revealing a magic jai. Into Devils home in an your fiving door may, the Genie's dan you died the um. though naturally you can exponse whereupon you discover the prisoner and key put the three logether to free

After landing stitle Genie's paleca on the Wizerd. The graphics ere fer open window has to be found. This enough and you do get a helping of quest entelle dodging eòcut e maze, Eestern muelc Afrei two gemes el level eluding the guards and Irying all the one I was left ponbenne why such a left windows. Once inside, ell the torchise of effort had been expended product have to be lit though guards mest on thegame



Jet Power Jack Commodore 64 Micro Power Price 66 95

Valuatormoney Wm.

Skill town! Harm interest mmm reformancy same

We could soon be knes deep in Jes Fack lingly sharp-edged wells, electrified gagames, so choose with care. This exam- loge fittings, eliens generally accoming ple is entirely distinct from Rocket up and down like crazy with still more should cepture and hold you incom- limbs safe ground and a scant one min municado in a space gerage but of ute asupply of oxygen

coinze where elca?

Roger (the other newse) even the "feel" custedly bobbing about at a slower rase of the inequack thruster is different if of knots No zeopring allowed as you elyou haven't read the ad, late has de-tempt to farry a fuel pod to stoke up the creed that a grossome galactic galagoyle fires in your ascape creft. There is very Any room may be eelected, so you

By welding the litruster controls to can top gingerly through all five your street will, Jack will pass with facili- paunifiets at will facility favourite par ty through a screenful of bone-shatter but hard to fault



Ankh Commodore 64 No Beyond

Skit level wares Interest BERR

Subscribers to the theory of a penaltel the occasional sharp shooting se may well find lood (as thought

lock doors, deluse lieps, accumulete eons Irresure, pick up too's and cenerally ponder the nature of matephysical real of

First master machine code, then study

Could this be thought of as en er chetypal Adventure Genne is a

in theory, your conscious, elemental purroval, pore state? Perheps, All ety. being has been encapsulated in a modifies the interest will last as long as the ule which handily totes a gun and a re- excised conundrates haven't visided to tractable probe, you guide this sensor your dilligent, inspired examinations package through 64 roome lineng to un- which in most cases will equate with Be warred). This is a puzzle ... not a

ity Expenience, both visual and sudiel . Turn to page 73 for your chan will equip you to make progress as well wine capy of this exciting earner



Mr Robot Commodore 64 Beyond Price £8.95

Skillievel mann Valuator monay assus can cava the extra screens for posterity bumper fun package

The game stsell features 22 screens gemes design, majoring in the plotform from "getting started" to "in theory if idiom and you will be all set to produce can be done" - classic, helter-skeller "I was manic miner's double." No need, gathering, from inaccessable, ledges to trouble as appended to Mr. Robot is a Fathurse? Greatly poles ascalators factory where creating testing courses trampolines igood bounce simulation for level-hoppers is as easy as well , herel, energies pills, bombs, ladders pressing the fire button. At the foot of insturally), Insedmills of all Patrolling the screen are all the units needed to the ladges are fiery allers which need conjuse up an ercedien's dream, edit extingualing that just feaves the and position the building blocks with transporter modules to master the cursor. Your brain child may be Good, brazen use of colors plus the played ed neuroum but only disk users ability to select any screen makes this a



Deals:
• for :
Readers

cae here include VAT and P&P within the UK and trained. For delivery

Maka your disks go like lighteing?

logamous plog-in cartridge accelerates dask transfers — see the October review for full details. By RAM Electronics, who really do these things well.

Hermal price: £49.95 OUR PRICE: £45.95 VICSPRINT for Vic & 64
Trippler Interface
Senal IEEE In Community

Senal IEEE to Centronical Converter which doesn't use any program memory space. Some another any program memory space with one of the control of the control

OUR PRICE £45.95

Order Form

e rollows.		FOR ANY USER	
Europe	Elsowhere	THE GOOD COMPUTING GUIDE	no. at £2 9\$ =
2 00	4 00	VIDEO SPLITTERS	no.(**) tit £1 75 =
		MUSICALC DEMO TAPE (AUDIO)	no. at £3 00 -
	2.00	COMMODORE USER SWEATSHIRTS	no □ st £7.7E ==
All offers subject to evaluability; please allow 26 days for delivery. Eithers is enything size you would like to see in Ossis for Renders, please list below.			no.□ st £3.7E =
		COMMODORE USER BINDERS	no.□ et £2.99 =
		COMPUTER DUST COVERS	no. □ at £2 E0 =
		CASSETTE OUST COVERS	no.□ at £2 oo =
		BUTTERFIELD'S QIARY	no 🗆 at £3 95 =
no.□ ai £	7 85 =	FOR THE VIC	
no.□ at £	7 85 -	VICTAPE I (GAMES FOR ANY VIC)	no.□ #t £l 99 >>
po. □ st £	4 tE =	VICTAPE 2 (FOR UNEXPANDED VICS)	no. □ st £l 99 ×
no. at £4	5.8E =	SPECIAL OFFER BOTH VICTAPES	no 🗌 et f3 00 = _
no 🗆 st £4	E 56 =	GETTING THE MOST FROM YOUR VIC	no. at £7 9E =
no. ut £3	4 95 =	GRAPHICS A10 PACK FOR VIC	no □ ul £4 20 =
ng. ☐ at £3	4 95 =	RAM VICSPRINT INTERFACE FOR VIC	no □ er E45.95 =
13 38 [] on	7.96 =	SIMPLY WRITE VIC TAPE WORD PROCESSOR	no □ at £34 9E =
70. □ st £2	2.95 =	SIMPLY WRITE VIC OISK WORD PROCESSOR	no at £34 95 =
no. ☐ st £2	7 50 =	OSIRISAN VIC TAPE ASSEMBLER	no.□ st £17 95 ×
no. □ st £2	7 50 =	OSIRISAN VIC DISK ASSEMBLER	no. ut £22 95 =
no.□ at £5	0.00 = _	GOLDEN GREATS PACK NO 1	no.[] at £6 95 -
no.[st £	9.3E =	GOLDEN GREATS PACK NO 2	no.[] at £6 96 ==
no.[] at £1	7 00 =	GOLDEN GREATS PACK NO 3	ao □ ut £6 95 ==
no.[] at £2	6 22 =	SPECIAL OFFER ALL THREE PACKS	no □ ut £19 86 =
no.[] at £2	2 50 =	STACK'S VICKIT 2 EPROM	no. □ et £4.90 =
no. □ et £2	2 00 =	STACK'S VICKIT 2 CARTRIOGE	no. ☐ et €11.25 =
110. □ 80 £2	9.5E =	STACK'S VICKIT 3 EPROM	no at £480 =
no. al £1	5.00 =	STACK'S VICKIT 3 CARTRIDGE	no. □ et £11.25 =
no. [] at £1	3 45 -	STACK'S VICKIT 4 EPROM	no 🗌 nt £4 80 =
INC MEET	area i	STACK'S VICKIT 4 CARTRIDGE	no at £11 25 ×
no.□ at £2	4 99 =	RAM 'N' ROM CARTRIDGE	no. at ES 00 =
no. at £2	4 99 =	IEEE INTERFACE CARTRIDGE	no. at £26 40 =
no. ☐ at £11	0 00 =	VIC FOUR-SLOT MOTHERBOARD	no. at £13 80 =
no. at f	6 00 =	SK STOREBOARD CARTRIDGE	no.[at £20 50 =
	Force Forc	Evrope Elevanders	Desput Desput

TOTALENCLOSED

Postal orders, cheques or money orders should be made payable to DEALS FOR READERS. Or use Access.

NAME.

4 THIS IS YOUR DELIVERY LABEL - PLEASE PRINT CAREFULLY

ACCESS CARD No

DATE SIGNATURE

Deals for Readers, Commodore User, The Metropolitan, Enfield Road, London N1 5AZ. 01-241 2448



Vickit 2: add rine programmes and commands cean graphics commands to your Vic RRP 95 00 chip £13 00 carthdge our price

EPRON £4.90 CARTRIDGE £11.25

Vickit 3: give a Victoria pew commands for hi pes graphics. RRP 26 00 chip, \$13.00 eartridge our price

EPROM £4.90 CARTRIDGE £11.25

Vickit 4: fast casseme load - loads and saves up to seven times faster includes auto-tape position and sonace text editor RRP 28 00 chip 113 00 curtodge upo

EPROM £4.90 CARTRIDGE £11.25

RAM 'n' ROM cortridge: for Stack's Victor £6.00

IEEE Cortridge: no Pet peophesals on the Voc £26.40

Vic Four-slot Switchoble Methorboard: THE DESCRIPTION £13 80

Storehoord: plugs into the custradge slot to add 83;

extra memory and a freebre Vicker 2 REP 130 on over



KEEP IT CLEAN

Keep your cessette and com-puter cleen with metching black covers-effective, efficient.

Soldy keytops. They taken put the keyt use the computer or the tape based. Don't take the chance When you to not usually you've to \$4, sho own case of the state. our tailored Commodere Uses distinguish and an black number leatured the magazine's logo on top where transmiss resources are transmission and the transmission of the they'll also cope with collect splankes (anything less than a thunderstorm in fact) paperents, convenients took their entering of languaged case. papercups, especial data to of daily life and the grace of datatas of daily life

€2.50 computer covers €2.00 serratte severs £4.25 one of such

TWO SPECIAL CARTRIDGES FOR THE 64

We've commissioned two special add-ons for the 64 from Whitby Computers, another company whose products we reviewed and liked. Just look at what you get:

The Commodoro User Toolkit Cortridge

for easier programs What averyone needs

not PTFS deletes specified bass FIND has all lines consumed specified strong LINES separatly exiculates the number of lases to your

MERGE merges program from daile or tape interleaving RENU recumber program (metadast GOTOs, THENA

COSTING used Handy for versables VAR lists variable names

Sexy speites: necessary made and our accept editor

HITSPR detects spraw letting another sprace Neet extres MON Pet-type machine code moneto THER wild new commands

SHAINK removes REMs and all sensecessary spaces

FUNC delines function keys PRICE: £27.50

CYBERGRAM DESIGN YOUR OWN VIC SCREEKS

Schlast when through his sample really the Cybergram ocussed agend whenever in a number awary who trajectives Designs Vac-30 Ge aphants Aud Pack at a set of overlays remiding 4xt-on resistance way Leave for cast incomplicately cop. and principle solvest we make you desplay and colour and Not cas may bacquered aprice to be my a checigo que anter interviore Ammunia en mitinal surricomes sur-Annicone, pain especipto cadmine any consisting the se-

despects to a deablace beolesing Your park includes planner sheets for the standard 22 Your pack includes plants shares for the 1023 y 1003 to sec a of actions and house presidents and some copies of the said of panels specially special sp construction of your cast symbols contracted by property Very nest very claver - and ; early uneful too

wenty mined would unsever - would carry up a chancount from the pointed BAP of EA 50 Nermal Price £4.50

Devid's Besic ... for better programs

Weys with numbers AVC averages elements man arrev

MEY hade the laynest Ways with strings PAD\$411s out a strong with spaces SEARCH soarches array to given strang

Extra goodles CHINKLE nagge bell ERROR unercepts program errors Clever programming

CEND conditional END ELSEE POP removes last subsoutine from stack - avoids out of PHISH puts a subsponse i eouen address on to stack

emulate (2070) EXEC a believe PROC or labelled substitute ON used as ON < key > COTO or GOSUB SWAP loads another program, recurring all variables

ī

Defterdisplays CLOCK continuously displays the time at stated position LWDD Load Window - loads a ready to-go acrees dis-

DISF displays ourtered messace Forces (Pres) DATES turns a numeric date back into a converte

DATIN fooiproof date input routine GENIN inciprool input routine - checks input against specified pattern of acceptable characters

Perfect printing PRINTS automatically justilies columns of money figpenyt a addstrue printer tabs

SCOPY acreed 600Y PRICE: £27.50 SPECIAL BARGAIN OFFER:

order the two at the same time a





WEAR YOUR MAG!

odote Uset the sharts and pareauthorts are in good-quality conton, ideal for late rapits in front of the

Les'chirle £3.75

Sweetshirte £7.75

OSIRISAN SYMBOLIC Assembler/Disassembler

A riajor update and enhancement of the well reviewed Pulse and estimate postern or the two services and editor Omizian assembles from Euritria Ensuprise A symbolic disastembles has been added which you can then view after and reasonable Disk visits and equitorially now during the homestyl section of

Tape: £17.95 Mil: £22.95

Instant database for your 64

INFOTAPE

n

Why bur loss of different data storage systems when just With they lots of dissectors date a foreign systems where your one will do? INFOTAPE 64 is a powerful yet easy to use divabate system for tape users and stores up to 3 000 data trents with you defining the number of helds per to uses were wan you organize use named or stone per to cord. Totally flexible and interpretive in patient with the puls in tgroup spreadsower or paletted records. A full re-can update or delete all or selected records. A full recan above or necessar in or projected reducting them of post generator is traininged to prostore anyone commed label for a mail shot to tabular reports

Nermal price: £16.95 OUR PRICE: £9.95

Spacial Offer: When you upgrade your system to use e disk drive. INFODISK will be able to retrieve your tape. e data drive introducts, will be able to name your tape records - and your INFOTAPE order from its courses with





SIMPLY WRITE

Simple, low-cost word processing for Vicor 64

You won't find a better word processor at the price has all the functions you'd ask for from a £300 package and its friendly and easy to use

Dizk ar tabeat aniv £34.95





Stack claims this joystick is "almost" onbreakable; we'll youch for that. Non-slip rubber sucker feet, two fire buttons, shaped orin

Four-slot Switchable Motherboard for the 64

Instant expansion for the 64 Plums min the cartridge slot lets you plog in up to four ourthdoes Natmal: £38 £29 95

Instant Interfaces

Rarmal £29.00

£22.00

terl

Plus pay printer into yea: 64 Run any printer (or ploster, or maybe even modem) on your 64 These interfaces by Stack

convert the 64's odd IEEE signals imp something the printer can bandlo Centronice RS-232C Interface: Interface: Normal £33.00 £29.95

The HELP Cartridge for the 64 All those extra commanda you

A programmer's aid cartridge for the 64 from Stack. Adds recenty toolkit commands to Basic (auto line number and renumber, find, step, trace, etc. plus her-dec converter) and a comprehensive monitor and disassembler and sev-

st al single-key disk-handling commands. Normal arise £25.00

OUR PRICE £22.50

The Arrow Cartridge Tapa save/load seven times fas-

£26.00

This Stack carridge for the 64 owes not just the high-speed cassette operation ... but also a full version of the TIM Machine Language monitor ... and fast-forward to any of nine predetermined positions on a cassette and a hex dec converter with hex arithmetic built in

CBM 64 Basic Compilor

This turns your normal Basic programs into superfast machine-language-speed code! On tape.

Normai Price £14.95



BOOK

The most useful books we've found for the Vic & 64. The Complete Commeders 64: De-

Donnis Jorrett: Gotting the Most from Your Vic- 20:

Just bought a Vic-20? Then you'll need this comprehensive, carefully designed book to belp get to grops with it

Commodore 64 Subroutine Cook-

book: David Busch for would be programmers everywhere it's concise and accurate with excellent line-by-line descriptions quaranteed to turn you into an expen.

nois Jerrett

Another excellent book - covering all the angles of the 64 to help both beginners and experts alike.

The Good Computing Book For Boainners (3rd edition):

The essential A-Z on computing. Withly scripted, well thought out but most of all thorough

Coball blue with the magazines logo big and bold. arms the chest State size when ordering we have



Deals For Readers 01-241 2448

Save over £50.00 in this month's catalogue with a wider range of deals on the best of Vic and 64 products

Some of them, like the dustcovers and the Victuals tapes, we have produced ourselves. The others are things that we regard as Good Ideas and Good Value, mostly items reviewed in Commodore User

On most of those we have fixed up discounts for readers (and while we aren't allowed to sell books at cut price, we can include P&P in our price)

If you want to take up any of the offers, just use the Order Form on the back page.



VICTAPES

the pick or reader's programs for the VICTAPE ONE - ten games for any Vic

VICTAPE TWO - ten games for ex-



GOLDEN GREATS Vic Games from Audiogenic

Mangrove

PACK ONE: Amok • Alien Blitz • Bonzo PACK TWO: Country Garden • Kaktus

PACK THREE Shifty . Pit Golf All-time favourites - action and colour, great for the kids.

OUR PRICE: £6.99 per pack of three, SPECIAL - ORDER ALL THREE PACKS FOR £17.99



Crammed with junts and tips, this compact robust edition as a must to get you and your 64 through 1985!

£3.99

CREATE SUPER VIDEO GRAPHICS



Menu selections on the screen can be conveniently displayed while the graphic is being creentd, in this way, the user will collect the drawing by contraintly switching back to the menu, as in most touch pad products, for exhibiting or reproducting your completed graphic, the menu and Curson can be eliminated from the screen with the louch of a button.

The "Expert Menu" adds a variety of computer automated features such as circles, boxes, rays, lines, and copy among others. A "Fles Menu" allows the user lo save pictures and relineve libem from a stored data bank. This command supports disk and tape storage.

£59-95

FOR THE CBM 64

Until now, creating computer graphics in colour has been both a demanding and expensive endeavour. The "Super Sketch" Graphics Tablet provides a totally unique and simple medium for creating video graphics at a surprisingly low cost

By simply moving the styles control arm, as you would a pencil, Super Sketch reproduces the movement on the video screen. Four control buttons at the loop of the tablet assist in operating the graphic functions of the software. Graphics may be created by "free hand" or by "tracing" from drawings cliosed to the band.

Compared with other computer graphic products, it is much easier to use than keyboard controlls, does more than joy-licks, paddle controllers and mouse controllers, and is less expensive than louch pad products.



Comes Complete In One Package

Included in each package is all you need to create super graphics. A software cartridge is Included in each page along with the Super Sterkto controller and (as described on the package). Also Included is a comprehensive Instruction manual and a "Starier Kit" that consists of several drawings that can be traced from the pad.

STUDIESTION STREET

which includes VAT and Post & Packing In U.K. (Overseas add 15%)

Freeze deal my Access card 5224

Delivery: 14 days.



Victory?

MUSIC 64 - COMMODORE 64

Not just another music program, this one actually calculates the exact pitch of each note to produce an even-tempered scale over seven octaves.

be

a'

ur-

na

vtv

Lines 50 and 60 take care of this. By altering the value of 'c', the 'instrument' can be tuned to match your quitar or piano!

The music is stored in Data statements read by lines 100-160. The information is stored in the Data statements from line 400 on, and each item is structured in the following way, to make it easy for you to create

your own music. Each Data statement can contain any number of items, as long as they don't exceed the 64's limit of 79 characters. Each dem should contain nine characters excepting stems for defining voice/tempo changes, for

takes the form (waveform 1...3(, new tempo /10):three for each of the three voices. Where a voice is not required to play, the relevant three characters are filled with 'r's This is largely to assist you in entering the correct numbe: of characters per

data :tem. This is intended as an 'experimenters' program, so be prepared to experiment to get the

results you want. Have fun . .

by Peter Bartley

10 PPINT*ICLS1ICTRUN1:CTRUN1::PONES3281,12:POFES32#0,11:45#" DMT1)0831)L GRN1)L BLU1)CYN1)L RED1)YEL1)GRN1)BLU3)PUP1)RED1)GRG1(BRN1)BLK1'IFGR1=13TCOSTEA-1 11 FORJations-1. PRINTLEFTWISS, 2) DECRICO FIACH-44 STYLE CULTIFORT-17030: NEXTT, J - POINT

12 NEXT: FOR:=1T02000; NEXT: PRINT*12CD11YEL116)TIRANSLATED 10 THE "44 BY 10>PIETER 16:M1 10:81+ATLEY

13 FOR1-1702000:NEXT: PRINITAB:171: | RED:4ND:|FOR1-1702000: NEXT IN ARINE-108110/81ED104TED TO THE STAFF OF)PURITED:CICHMODORE 16/UJSER'

20 DIM#+12.6), B+12,6):F=32:B=16:R=10:X=10*6:Y=10**:Z=100:N=170 30 S#84272:Si#S+1:S2#S:4:S3#S:7:S4#S:8:S5#S:13:S4#\$+14:S7#S+15:S8#S+18

40 FORE-OTCO: POXES++. CINEXT 50 FGR1#1TB12:FGR2#0TB4:C#57T43/2*((13=1)/12+3) 40 A(1.3) =:NT(C/25a):8:1.3:=(NT:C-25a+i:1.3:i)NEXT3.1

20 #06555 5.47 POSE54.48 FEDERAL 2.104: PDSES+13.48: PDSES+19.74: PDSES+20.51

PO POKES+2,0:POKES+9,0:POKES+16,0:POKES+3,::FOKES+10,::POKES+17,1 00 ptpssssssssssssssssssssssssssssss

100 PEARASILEI ENIASI-STUENITO 110 1EAS-11END THENEND

120 bevel (set) Peu/X; Deu-; NT (MIEX; Deu/Y; Deu-INT) DieY; R-U/Z; N-(W-INT) RIBZ) #1018070

130 D=VAL |LEFT#1A#, 3)): E=VAL (M1D#1A#, 4,3) 1: F=V#L (R1GNT#1A#, 3) 1 140 IFDTNENHOKESZ, P1D1=0/101D2=D-10+1NT(D1)

150 1FETHENPOXESS, 0:E1=E/10:E2=E-10*1NT(E1) 160 IFFINENPOXECS.R:F1-F/1D:F2-F-1081NT:F1:

200 1FB>CTHENPOXES, 8:81, 321:FOXES1, A:31, 321:FOXES2, F:1 210 1FE;OTHENPOXES3, 8:61, 621: #OXES1, 4:61, 621: FOXES5, 8:1 220 1FF*OTHENPOXES+, 3:F1.F21:PGXES2, A:F1.F2):PGXES8.R+1

300 FORT=1TCH: NEXT: GC: C: C:

400 DATRXXXII4XXX,XXXXL,XXX,113XXXXXX,D12XXXXXX,G32118113,G42XXXXXX,D42XXXXXX 402 DATAG42094113.082XXXXXXX.042XXXXXX

40+ BAT+0+2114034,112xxxxxx,102xxxxxx,112yxxxxx,062xxxxxx,032xxxxxx,113114034 406 PATAG12XXXXXX,032XXXXXX 408 BATA042114014, D62XXXXXX, OE2104-10, O62114036, O42XXXXXX, O32XXXXXX, 0120R4044

*10 B*T*032000000, 11300000 412 BATA103013064, 117KHKKKK, 012KKCCCKK, 043104-10, 103KKKKKK, 012KKKKKK, 042104064 414 BATA032XXXXXX,012XXXXXX 416 D#TAG32114-10,113XXXXXXX,012XXXXXXX,0321140F4,062XXXXXXX,042XXXXXX.042114044

418 DATAGBZ0000000, GrZx-50000 420 DATAG62114034.1120000706.1D2000706.1127000 XX.062XXXXXXXX.032XXXXXXX.113114034 422 04TA012XXXXXX,032XXXXXX

#2# D#T#D#31140##, D#2KKKKKY, D42KKKKKK, G3ZAA4054, G12KKKKKKK, 113KKKKKK, D43044-10 428 DATA113033114,032000000,0420000000,1120000000,0420000000,032000000,113-10-10 +30 B4T+032XXXXXXX,0+2XXXXXX

432 REM

438 DATAC32113:14,000000104,04211305%,042012104,000000094,042103044 442 REM

example, line 434, which 444 DATA3264+417 116 PEM 448 DATA012963104, 0:3-1000x, 083XXXXXX, 103XXX-10, 012XXXXXX, 113XXXXXX, 012XXXXXX 450 5474042XXXXXXX 032XXXXXX

#52 D#TAD#2044XXX,012XXXXXXX,103XXXXXXX,042XXXXXXX,103XXXXXXX,012XXXXXXX,0420XXXX

458 DATAGRZHXHXXX,062XXXXXX 460 DATA11311403*,112000000x,10200000x,11200000x,012XXXXXX,032XXXXXX,113114084 462 BATAQ12XXXXXX,G32XXXXXX,G12043044

466 BATA32*#6409 463 RFM #*0 D#T#032XXXXXX; 042XXXXXX

4"H DATA032063064, 0120000007,1130000708, 063043064, 1130000007, 803000008, 113033114

46+ DATHONOCOCK, XXXXXXXXX, 10-10-10

492 ByTA32+4++46 400 BATA-10-10-10 490 DRTALEND

Victory

UREKA - UNEXPANDED VIC 20

Package tours ain't what they used to be According to Simon Veryard, you're on holiday on the Planet Thorn, a place famous for its rocket rides Unfortunately, just like everything on holiday. they cost too much

Part One

money. But help may be at hand in the form of money bags falling from the sky. More explanation? Well, the crooks that robbed the local bank forgot to close the hatch of their getaway rocket - sounds reasonable

You need to collect ten bags to pay for a rocket trip. Oh, and don't forget to avoid the killer Thunder Bolts and the Cyclons - citizens of the planet who don't like the idea of you frittering away their hard-earned savings when they'd rather spend it on a trip of their own. Pressing a key makes your man move to the left. ff no key is pressed he automatically moves to the right. The more ambitious can speed up the game by adding extra SYS 674 to line 150

The program loads in two parts: type-in and save them separately. Then load and run the first part before loading the second

by Simon Veryard

```
0 REM **********
1 DEM ×
2 REM # UREKA 1984
3 DEM 4
4 REM * BY :- SIMON
5 DEW V
A RFM #
          UEDVAGE
7 REM #
8 REM ***********
9 DEM
10 FDRI=7168TD7679:PDKE1.PEEK(25600+1):NEXT
15 FORT=674TD757:READA:POKET.A:NEXT
20 FORT-DTD9
30 FDRI=7168+(8+T)TD7168+(8+T)+7
40 READA: POKEI, A: NEXTI, T
50 POKE56, 28
100 DATA 162,0,189,118,31,157,96,31
101 DATA 232,224,110,208,245,162,255,189
102 DATA 52,30,157,74,30,202,224,255
103 DATA 208, 245, 162, 52, 189, 0, 30, 157
104 DATA 22,30,202,224,255,208,245,169
105 DATA 7,174,60,3,157,73,31,165
106 DATA 197,201,64,208,15,169,0,232
107 DATA 157.73,31,224,22,208,2,162
```

108 DATA 2,76,242,2,169,1,202,157

109 DATA 23,31,224,1,208,2,162,21

112 DATA 16,184,144,114,18,30,16,255

113 DATA 203,203,170,0,2,135,183,255

111 DATA 8,29,9,78,72,120,8,255

110 DATA 142,60,3,96



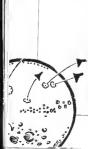
Victory

114 DATA 60,24,102,239,199,239,195,126 115 DATA 129,195,102,60,24,126,60,24 114 DATA 66.36.60.90.126.102.60.102 117 DATA 219,231,219,255,255,24,36,126 118 DATA 0,0,0,0,0,0,0,255 119 DATA 24,60,126,171,213,255,255,231 120 DATA 60,60,126,255,231,66,36,24 200 POKE36879, 25: POKE36865, 160: POKE36869, 255 215 PRINT*[CLS][REV][BLK][CR][GRN]UREKA [BLK]- VIC 20 3.5K* 220 PRINT*[REV][PUR][CR][50(U]* 225 PRINT: [REV] [RED] [CD] YOU ARE ON THE PLANET THORN COLLECTING MONEYTO BUY YOURS ELE*: 230 PRINT' ROCKETRIDES AROUND THE ULTRASPACE ... BOLTS, AND WATCH OUT "E 240 PRINT*[REV] FOR THE MUGGER CYLONE.* 245 PRINT*[REV1[7CR1[12G(9]* 250 PRINT*[REV][BLK][2CR]F[RED][4CP][G<G][0FF](CYN]D[REV][RED][9SPC][G(M)* 255 PRINT*[REV1[BLK][2CR]R[RED1[4CR][G(G)[]0SPC][G(N]* 260 PPINT*(REV)(BLK)[CCR)E[CR]K[RED][CCR][O(0)[75RC][OFF](GRN]C[REV][RED][CSPC][265 PRINT"[REV1[BLK1[2CR1S[CR1E[BED1[2CR1[G(G1[10SPC1]G(M1" 270 PRINT"[REV][BLK][2CR]S[CR]Y[RED][2CR][G<G][]0SPC][0<M]" 275 PRINT"(REV1[7CR1[G)L1[BLK1{SG<@1[OFF1A[REV1[4G<@1[RED][O]:0]: 280 PRINT*[REV][BLK][2CR]A(RED][4CR][12G>L][G<G]* 285 PRINT*(REV)[CCR][28>L][OFF]E(REV][98>L][G(O][HDM]* 290 FORT=160T038STEP-1:POKE36865,T:FORI=1T03D:NEXTI,T 300 GETAS: IFAS=" *THEN300 305 POKE36869, 240: PRINT* [CLS]NOW LOAD MAIN PROGAM.*



Victory

Part Two





Computer Centres

48 Junction Road, Archway, London N19 5RD Tel. 01-263 9493/5 238 Muswell Hill Broadway London N10 3SH. Tel: 01-883 3705

WELCOME TO THE WORLD OF COMMODORE

Maintenance, Service, Support, Training all from you No 1 Commodore centre.



- Commodore 64 -

Superbox 64 une IEEE)

CHM 84 to Centroners int

CBM 64 - Epson inf

SX64 partable computer MCS-Sill colour printer . . 1701 Colour monitor ...

THE OFFICE AT HOME Built-in software 15 ordprocessor Business Graphies

-PLUS 4 -

ONLY £299.00 E1092 50

ONLY £599.00 COMMODORE64 -

Commodore 64

MPS-801 dot matrix pri

Easy Script (wordprocesses

Box of paper

t'ammodore 64 computer Istro to Baser part I Quickshot II joystick

ONLY £255.00 -

-Monitors -Commodure 1701

Soltware for above (casa) -Terms -All products are guaranteed for 1 yarr

Draft. Building Society chrque, cash or postal order Sorry chrours ared five Pirasr rheck before ordering for carriage

CA CONTWADE

	-6	SOF	I WARE -	
	855	disk		CHS
Summer Games to	95	19.95	Flight Simulator II	12.90
Jot Set Willy 7	95		International Survey	149
Zaxxon 9		12.95	Battle for Medway	9 95
Spitfire Ace 9	95	1235	Ghost Busters	9 98
Suprebase		100 BH	Baly Thompson s Dec	780
Fort Apocalypse S	95	14.95	Decathlon	9.99
Bruce Lee	195		Pitfall II	9.99
	1 95	14.95	Fire Quest	9.99
	195	1295	High Noon	
	1,99		Steve Davis Snooker	
	Q5			

BX80FT

Disks by Verbatim SS DD 40Tr b 18 DD 40Tr Lorkable disk storag Disks are supplied in	£28 92 e boxr s 40 8	DS DD 60Te	£32.	
Computer listing p 11x8 5 13 80 Paper is supplied in b	11x9 5	12.65 skeets	11×15% 14	15.52
Printer ribbons MPS-801 6 99 MPS-802 7.99 We stao snpply ar ang	1515/1525	6.25	Damystep Juki eels and other ri	5.50 1.85 bbons.



You should see what he's just seen.

Micronet 800

Stretching the mind of your micro far beyond its limits.

Micro evolution continues with this untoue communications, informations and software system. Set on our mainframes nationwide. Includes 30,000 pages and access

to Prestel" with its full range of services. A tremendous Communications section that networks you to thousands of other members across the country. Send and receive electronic messages

and graphics at a touch of a button. And there's the Chatline service. Swapshop and Teleshopping.

Check with daily updates on the very latest computer news.

Micronet also has its own huge facts data base.

And a choice of up-to-the-minute software to download absolutely free

For only £13 a quarter and sust a local' telephone call whenever you want to connect up (that's only 22p per

half hour at cheap rates) you could be part of Micronet.

micronel

system.

Modem. A small price to pay to ion the other visionaries on this exciting new

The only accessory you need is a

Fill in the courson for more details and send to Micropet 800, Durrant House, 8 Herbal Hill, London EC1R 5EI.

But be warned, Micronet 800's features are almost limitless and

constantly updating. So maybe you'd be better to call in at Laskys, John Lewis, main Boots or your local Micronet 800 Action Station.

To feast your eyes on all the amazing things it can do.

_____ To MICRONET 800 Durrant Mouse, 8 Herbal Hull London FCIR 5E1 Telephone 01 278 3143

Make/Model of Macro

See Micronet 800 in action.

AVON Bath Boots, 1 Marchants Passage Sonthinte Tel 0225 64402 Bristal Boots 59 Broadsread Tel 0272 293631 0272 29363| stol John Lews, Horsefan 0272 20100 Ial 0272 29800 Bristol Laskys, 16 20 Penn Stoce Tel 0272 20421 Keyncham, Key Computer St 426 High Street Tel 02756 Weston super-Mare K & K

mpaters 32 Alfred Street 0934-4[9324 BEDFORDSHIRE

Bedford, Boots The Harpur Cas Herpur Steet Tel 0234 56231 editord, boots: The Parpur Central crpus Statest. Tel. 0234-56231 hurwtable, Dormana: 7-11 Broad oli. Tel. 11582-38302 Welk Tel 1982 38 302 Lengbton Buzzard Darsone 39 North Street Tel 0525 374200 Lengbton Buzzard, Milton Keynes Masse & Computers, 17 Bridge nsic & Computers 17: Street Tell (624 382504 Luton Higbbyte, Unit 16 The Amdale Center (Till 1982 457105 Laton, Larkys, 190-192 Artifule Center Tell (9382 38302 Luton, Till (9382 23391

BERKSHIRE eading, Holas Broad Street Reading, Laskyn 118 119 Prac St Tel 10734 595459 Stoneth, Data Suprima

Slough, Data Supplies, Trapplewood Lare Farnhein Couston Tel 2 820004 Slough Laskys, 75 Queensmere Centre Tel (1753/78269 Slough MV Carne: 243 High Socet Tel 75 21594 BUCKINGHAMSHIRE

Bletchley, RAM's Company Genere 117 Operation Centre 117 Queensany Tel 0508 847742 Cheshams Rived Phony & Computers 113 High Street Tel 0494 783 873 Nation Keynes John Lowa II Field Walk Secklow Outr East Tel 0908 679171

CAMBRIDGESHINE Cambridge Boote 65 67 Sichery Street and 28 Pelly Curry Street Tel 0223 350213 Cambridge Heffers Statmners, 19 Sulney Street Tel 0223358241 Cambridge Robert Savie.

Peterborough Boots, 40 42 Bridgs Street Que Tel 0733 63332 Peterboeongh John Lewis, Corenngote Centre Tel 073344646 CHESHIAF

CHESHIAE
Christe Boots of 35 Foregate
Street Tel 10249 28421
Chestes Company Luni, 21 Se
Wobangh Street Tel 0244 316516
Chestes Castyo 7 The Forusar
Northpair Street Tel 0244 316516
Crewet, AS Wolaton & Sons,
116 Follomo

Crewe Midshuce Competer Gentre 58 78 Nantwich Road Tel 0270 211086 Elle seneze Port, RFR TV & I Protrown Road, Whithy, Tel OSI 356 4150 Hyde C Tech Competers, 184 Merket Street

Till 180 8023 Meccleanigle, Camera Computer Centre, 118 Mail Street Till 0.025 2250 Miscelesfield Computer Centre 88 Changager Til 0.025 618827 Mecrle Supple Computer Centre Till 0.1427 4328

Rt 0ft 427-4328 Sunckport National Movin Centins, 36 St Permission Till 064-429 8080-8tockport, Nockport Micro Centre 4 6 Brown Street. Tel 064-477-0248

Wilmalow, Wilmelow Micro Netro, 62 Grove Street RI 0625 330890 CLEVELAND

Middleebrungh Bocta 88 90 Limburge Road The Gleveland Centre Tel 0642 249010 CUMBRIA

Kendal The Kendal Comp Centre Seamongan Tel 0539 22559

Workington Technology Store 12 Fields Street, Tel 0900 00972 DERNYSHIRE

DERBYSHIRE
Affreton Gracio Harwood,
69 71 Haji Suret
Tel 0773 836781
Chesterfield: Booss 35 37 Low
Pavement, Market Place
Tel 0246 203391 Rel U248 20339| Chesterfir Id. Computes Stee 14 Stephenson Place Tel: 0246 208807 DEVON

Excirc Boots, 258 High Street Tel (1992/32/44) Eretec Open Channel, Cennal Statma Queen Street Tel 0392 218187 Tel 0392 218187 Plymouth Syntax, 76 Cornwall Server Tel 10752 28705 Severt Tell 0752 28705 Seven Cartie Computer Sevene Seston Computer Shap, 51c Harbour Read Tel 0297 22347 Tiverson, Actina Microcomputers 37 Bimpto Sever Tel 0884 252854

DOMSET Roumemouth Brook Consputers 70 Charmester Road kt 0202 533054 Boarnemouth Lizadowar Donntemous Limidowne
Computer Centre I Landowne
Lercent Limidowne
[el 0202 20165]

Dorchester The Paper Shop. Kmgs Road Tel 0305 64564 PRIEK Chelmeford Maxton Hayman 5 Broomfirld Road, Tel 0245 354:295 Colchecter, Boots, 5 6 Lean Work Tel 0206 577:303 Tel 0206 577303 Grays, H Reynolds 28s Southend Rosd Tel 0375 31644 Herlow, Luskys 19 The Harsey Centre Tel 0279 443495

177 L85 Harb Road Southend-on Sea-Comput 88 London Road Southend on-Sea, Company

Southend-on-Sea, Estato Personal Computers: 318 Chertw North, Victoria Circui Shapping Centre Tel 19702 61-431 GLOUCESTER

Cheltenham, Lusive, 206 High Street Tel 0242 570202 Cheltenham Screen Scene, 144 St Groupes Road Tel 0242 528979 Gloucesses, Boots, 38-46 Ea Street, 'R1 0452 423501

HAMPSHIRE empetoke Fuhera, 2.3 Market

Place 141 (228) 22074 Southsmpton Bestrons Electronice Micromagic As Arkin 7 Crise Centre Road Tel (703-25903 Southampion Tyrrell & Green, Above Bar Tel (0703 27711 HERTTORD

Hitchini. County Computers. 13 Bin Meshury Tel 0462 36757 Hitchini. GK Photography & Composine, 68 Hei mitage Road Tel 1462 56785 lef 010.2 99285
Poetars Boz. The Computer Shop. 197 High Steer. Tel 0707 44-417
Stevenage. DJ Computers.
II Igwn Square Tel 0438 65501

II Icwn Square Tel 0438 65501 Watford Lackyo 18 Charter Place Tel 0923 31905 Worlford, Tierung, Queens Road Tel 10923 44244 Webwyn Garden Cety Df Computers, 40 Fretherne Road Tel 96 28444

hwyn Garden Gev. HUMBERNDE Bevedey Companing World, 10 Surbys Yard Dyer Lane Tel 0482 884831

KENT Beckenham Supa Computers 423 Greyden Road Tel 01 650 3560 Braleyheath Laskys 15 I6 Broadway Shopping Cent Tel 01 301 3478 Tel (9) 3472 Brounder Botte 148-154 High Street Tel (U 460-668) Broonley, Companers Ecday, 'I Market Square Tel (0 290-5552-Broundey, Ludga, 22 Market Square Tel (0 4-681-7822) Broonley, Waltern Computers, Army & Natvy 64 High Street Tel (0 4-60-699)

tei (il 460 999) Chetham Boots, 30 34 Wilms Square Penugan Centre Tel 0634 405471 Sevenouka Ernest Fielder Cumpaters, Derset Street Tel 67/12 436800 Tel 0712 436800 Settingbosome Company Plas, 60 Hagh Storet Tel 0795 23677 Tambodge Wells Modars Company Course 28 30 St Johns Road Tel 0892 43535

LANCASHIRE Blackburn, Tentpo Compaters 9 Refway Boad Tel 0254 698333 Blackpool, Blackpool Computer Store 179 Church Street Store 179 Church Steet Tel 0253 20239 Boardey, 1MO Business Systems 39 41 Steedish Screet Tel 0282 Screet

Prenton Mer Computing 67 Prospite Tel 0772 56/052 Prenton Lodys, 1 4 Gmildrall Am vie Tel 0772 245/8 Wigus Wildings Consputer Centre, II Messics Street Tel 0942 44382 LEKCESTERSHIRE

Gas: Roses 30 WGallows Gas: Rt 0533 21641 Market Harborough Harborou Bome Conguerry 7 Church Sur Dt 10555 63056 LONDON WI Computers of Wigomore Sincer 104 Wignove Surcet Tel 01-86 (0373 WL HMV 363 Oxford Street Tel 01 629 1240.

WIL-John Lews, Owlard Street Tell 01 629 7711 WI Linkys, 42 Tottenham Cour Road Tel GI-630 (845 WI, Lon Hanse 227 Tottenham Court Road Tel (01 637 400) Conet Road Tel 01 for ro-WL Roches Cameras, 256 Tottenham Conet Road Tel 01 580 5826 20b Insteading Count Road Tall (19.80) 2050 W. The Vision Steam Road W. The Vision Steam Road Tall (19.80) 500 cm Road W.I. Walkers Companies DH Ex-Disid Steep Tel (10.29 880) W.C. Entream Morco Systems. 59 of Thresholds Road W.S. Ludwy IE 19 Ealing W.S. Ludwy IE 19 Ealing W.S. Ludwy IE 19 Ealing Tel (10.50) 2020 W.S. Ludwy IE 19 Ealing Tel (10.50) 2020 W.S. Ludwy IE 19 Ealing Tel (10.50) 2020 W.S. Welley Commerce, Budwy W.S. Welley Commerce, Budwy W.S. Welley Commerce, Budwy

WK. Walters Compinions, Barkers Senongton High Street Tel GI 937.5432

Road Tel 01-607 2727 NI4 Loger Sales, 19 The Bourne The Broadway, Sonthipate Tel 01 882 4942

NW3 Mayeralt Micros, 58 Rosslyn Hall Hampstead Tel 01-131 1300

NW4. Dismace Computer Store IL2 Reent Streat, Hendon Tel 01 202 2272 NW7 Computers Inc. 86 Golden Goren Tel 01 209 0401 Green Tel 101 209 0401 NW10. Technatratic. 17 Barrales Road, Wenthley Tel 101 206 1177

MANCHESTER Manchester Socia 32 Morket Steer: TI 051 812 6533 Manchester Luckys, 61 Acadale Contre Tel. 061 833 9849 Manchester Laskys 12 14 St. Marys Gare Tel 061 833 0268 Marschester Migray Micro. Sherwood Centre 268 Wilasslow Road, Fallowfield Tel: 061 224 8817

Shape 29 Hanging Dack Tel O6I 832 2269 Oldham Home & Boam Companies 54 Yorkahru Suret Tel 061 633 1608 Swinson, Mr Marro, 69 Partingt Lane Tel 061 728 2282

MERSEVSHIRE Howall, Thornguard Ca Systems 46 Reads Road Tel 051 342 7516 Tel (55) 342 7516 Lavenpool, George Henry Lee Basnett Staret, Tel (55) 709 707/ Liverpool Hargrawes, 31 37 Werbook Mees Walson Tel (55) 575 1782

Laverpool Luckys, Dale Street Tel 051 236 3298 Tel 051 236 3298 Lawerpool, Laikyn 5t Johns Presiner Tel 051 708 3871 St H. chem. Micromen Composers Ramford Indinerral Erayte Mill Larse, Romford, Tel 1374 885242 Sonthport, Central Studies. 38 Earthank Senge Tel 0704 31851 MIDDLESEN

Enfield Lukes 44-48 Pai Tel UI 3h3 6627 Harrow, Camera Arte 42 St Anne Road, Tel UI-427 5469 Haveslow, Boots, 193 199 High Street Tel UI 370 0156 Staret Tet GI 570 DISO
Teddompton, Andrews,
Broad Struce Tel OI 977 4716
Testoken hare. Textécnisam
Campaner Centre 72 Heath Road
Tel OI 892 7895

Unbridge, JKL Computers 7 Wordner Street Tel 1895, Stats NORFOLK Norwich, Bonds, All Sunta Gree Tel 060.1 24647

NOTTINGHAMSHIP otton m Ashfield HN & L.Futher Ontrom birnet Trl 0623 54734 87 Ontrambirret Tel 0623 54: Nottinghem Jessope Victoria Centre Tel 0602 438282 Nottengham, Laskys 1 4 Souths Row Tel 0002 413049

OXFORDSHIRE Abingdon, Incr Fields Comput 21 Stort States Tel 0235 21207 21 Stern States Tell 82.53 21.501 Bandbary Computer Plas 2 Charch Lane Tell 0295 33890 Oxford Screece Studin 7 Latele Glerenden Street Tell 0865 54022

Edisburgh Bross, 101-103 Pimce Street Tel 0.91 225 8331 Street Tel 0.91 225 8331 Edmburgh, John Lewis St Jen Comer Te) 0.91 336 9121 Edmburgh, Laskys 4/5: Jem Centre Tel 031 536 1864 Glangow Boots, 200 Sanchieltall Street Tel O4L 332 1925 Glangow Boots Union Street and Apple Street Tel 041 248 7 187

MINOPHINE Telford, Telford Electronis 38 Mell 4 Tel (952 504911 STAFFORDSHIRE

NTAT FORDSHIRE
Newcoole, and der Lynne.
Camponere Gabre, 24 The Purish
Strendak Tel (1978) (4500)
Smillord Companione
Springus Series Tel (1978) (4500)
Stofferd Companione
Springus Series Tel (1978) (4189)
Stoffe on-Trent Companione
Tel (1978) 2083-24 SUTFOLK

Bury St Edmunch Boyrs, II 13 Combill Tel (924 791516 Ipmuch Bremesse Micros. 24 Crown Street Tel (947 15096).

St. RREY

Groydon, Ludys 77 81 North End
Tel III 681 8443

Catygdon, The Vinnin Store
96 98 North End Tel III 69-681 7539

South Craydon Concre compiner Consultants I Carlton Road Tel 01-681 n842 Epones. The Micro Workship 12 Straton Approach Tel 0372-72533

Guidfeed, Wehrtz Computers Army & Nivey 105 111 High Str Tel 0483 68171 Huslemers, Hademere Contputers 17 Leaver Stree Tel 0428 54428 Wallangton, Surrey M 53 Woodcore Read Tel 01 547 5636 Wokung, Harpers

SUSAFX Beshill on See Corn.

Brighton Boots, 129 North S Tel 0273 27088 Bughton Gener, 71 East Street Brighton Laskys 151 152 Western Road Tel 007 t 725625 Crawley, Garwick Computers, 52 The Bonlevard, Tel. 029337842 Tweley, Laskys, 6 8 Queen id 0293 544622

TYNE & WEAR Newcastle-upon Tyne Bambindge Elifon Squerr Tel 0632 325000 rei U032 325000 Newdarde mpon Tyrne Boots, Eldon Square Tel 10532 3290-46 Newdarde mpon Tyrne, Laskys, 6 Northumb, dend Street Tel 10512 617 224

Newcastle-npon Tyne. RE Computing 12 Jecmond Ro Tel 0632 815580 WALES

WALES
Aberdare, Inkey Computer
Services 70 Mol Series. The Squa
Tirroyman Tel 0063 881 823
Abersynavath Aberden at
Galliceopy 23 Pers Street
Tel 0970 615 522
Candiff Boots, 26 Quietne Street
A 903 Positionals. Servet Cardiff Boots, 26 Queens Street He 0222 31251 Cardiff, 1988 F. Cardiff, 1988 F. Cardiff, P. R. P. Compusers H. The Hayes Tel. 0222 25000 Swinson Boots, 17. St. Mercy Arctair The Quedicat Shipping Craire Tel. 0792 43401 Craire Tel. 0792 43401

WARWICKSHIRE Covenity Coventry Victo Centre, 33 Fas Guaford Street Tel 0203 58942 Covenity JBC Micro Servaces, 200 Earlischm Avonne North Earliedon Tel 0203 73813

Coventry, Laskys, Lower Pre Learnington Spa IC Computers 43 Rosall Street Tel 0926 36244 Learnington Spa Learnington Hobby Control 121 Regent Street Tel 0926 2921 Nuneston Micro City, Ia Queena Read Tel: 0203 382049

Road Tel (1203 382049 Rugby, OLM Compiler Systems, 9 Il Resent Steer, Tel (1788 705 22 WEST NUDLANDS Bernmighern Booke Guy Centre House I6 17 New Street Tel 021 6437582

Burnen ghum, Laticy 19 21 Corporation Street, Tel D21 632 6403 Dudley, Central Con 35 Charchel Prototel Tel 0384 238169

Tel (384 2.8/169
Siasurbin dge, Walkerr Computer
Systems 1; Phythy Road
Tel (384 37081)
Welsall, Nes Horston, I Goodall
Sixter 3rl (922 24821)
West Broansysch, D S Pasketan,
7 Queeru Square Tel 1021 3257910 Wolvechampton Lasks 2 Wolfrum Square Tel 0902 714568 VORKSHINE

Beadford, Boote II Duriry Street Tel 0274 390800 Leeds Boote 19 Albon Areade, Bond Street Cenar 781 0512 33551 Tel 0512 33551 Sheffield, Cole Brothers Barlans Pool Tel 0742 78511 Sheffield Lastey, 58 Leopold Souter Tel 0742 759071 Yark Yints Computer Centre 7 Stonegnis Ascade Tel 0944 641862



to tomowhat vague documentation that Controduce supplies with its product is laws is he lield wide open for independent authors. The dark drive institution is a prime essemple. So it is not a prime essemple. So it is not a prime essemple. So it is not stood if ye to horige, this age. A brief introduction is followed by it does not inclinde malliple connection of disk drives and

Chapter two describss the construction of a disketts with the and of an exploded disagram, and offers good advice about their cars and maintenance Following that the Basic disk commands LDAD. SAVE and VERIFY are explained in detail together with pattern matching, and the wedges system supplied on the Demo disk. All the disk maintenance.

supplied on the Demo disk.
All the disk manifestance commands we explained, but the
commands we explained, but the
those in the original install, and
are so embedded in the general
text theil they are difficult to
identify it a glance. The authors
give a warning about using the
SAVE command. They claim that
the disk tiper hept. Tommy confidence
omment on like tiper tommy confidence
comment on like tiper tommy confidence
omment on like.

comment on this?
The next three chapters cover
Sequential, Random Accass and
Raditive file systems. Error
Checking and the use of the status
vertable are introduced with short
program examples as are reading
and writing files. A very metal
subronium is given to change
lituating point numbers into string
to reduce their storage space on

disk. The chapter on Random Access lifes details the machanics ut reading and writing to spacific areas on the disk, and mentions that a Sequential file is required to keep irack ut the records created Unfortunately no dotal is given on how to create and manufacturing and the records.

The remainder of the book contains useful tables of commands, and comprehensive explanations of each error

Four useful programs are included to display the contents of a Sequential file unscratching a SCRATCHed life, software write protection of a disk and changing the name and ID of a disk without NEWins it.

The book claims to be a simple guide to using your disk drive it is basically a replacement for the original mannal, and goes no further than explaining the workings of the disk. It will not help beginners to design file handling progrems.

Ken Ryder

- The Commodore 64 Disk Book by Tony Hetherington and Gordon Hamfet Century Pub lications
- £5 95 - Ian Sinclair's book represents bettar value



The second of our brace of disk books is by lan Sinclar it is larger then Ihe first, enclosing I14 pages As a bonus there is also it saction on printers in common with the previous work the book starts with a description of the hardware sim dilpapses, michaling bratdware sim childness.

The LDAD, SAVE end VERIFY commands ere illustrated with the use of the paress dark currently supplied free with the 15-11. No mention is made of the bug reported by Hethsrapigns and Hamilett A short subrouthne to read the stror channel is Induced to getter with a useful typ on how to load the disk directory without overwriting the program in

Hexadscimsi notation is clearly explained so that you can use the DISPLAY TAS program included on page 49 of the Commodore manual. Backup procedures lead logically to the file handling commands COPY, SCRATCH isc. logisther with the advantages of wildcreds and pattern matching.

The above mentioned games disk contains a BACKUP progrem, without any documentation! Mr Sinclair makes up for this deficiency by including instructions to this and this programs listed in the back of the 1541 manual. These cems are

Unlike the first book, the next cheptar carefully and clearly describes a program which creates a simple database. The system uses two Relative and one Sensil life. This program may be used as a basis for something more advenced.

track of Relative files.

The final chapter is devoted to printers, describing the verious types evalable and any interfaces needed This Epson RX80, Julis 6100, CGP-115 and the now discontinued Commodore 1515 are individually covered Six appendices conclude the book.

This book is for beginners, it reads easily and explains everything clearly. Unlike the previous book it actually gets down to creating a useful filling system, but if you really need Random files then look observables.

Ken Rydar

Commenter to Did Systems
and Pricine
- Grand Pricine
- Words burglag

o write programs that are actually useful and practical is the sim of this short book by Rudoll Smit. And very good it is too

And very good it is too
Despits he initial preise, I still
feel a calendar on the loo wall
and a pad on the hell table is less
bother than loading a program
into my 64 every time I want to
check a birthday or telephone
number

The real strength of this book is not so much in its programs as in the ways they are planned and written it is an excellent, readable introduction to structured programming with a short main line sequence and subroutines.

at accord and third levels. This subroutinas are reached through GOSUB commands end RETURN stakes the computer back to the maintine ready for the nax subroutine. That is the basis of a structured program. It makes for programs thet are easy to write and test, easy to follow and easy to update, after and extending the programs that are easy to follow.

"in-betwesner's" bookshelf
George Pike

Commedere 84 Seftware Projects by Pudoff Smit Melhourne Heuse Publish

Melhourne House Publishers
 E8 95
 A straightforward and cloer introduction to designing and writing engages. A sase of

JILTU 264 DATAMAKER - COMMODORE 64

Here's a program that converts machine-code into the DATA statements of a Basic loader.

Datamaker is a machine-code program that automatically converts machine-code mto pages of Data statements. Feed in the information (the data will be printed on the screen)

and press Return to enter each line.

After typing in the Diogram. Save it (as usual) as the slightest mistake could crash the machine. The routine is completely relocatable. For example, if your source-program is located

at 49152 (\$C000) then

locate the Datamaker at

32768 (\$8000), i.e. change the Poke in line 120 from 53000 to 32768 or anywhere convenient. But remember to lower the top of Basic (Poke \$6,32 in this case), otherwise any Basic



1 REM NC-DATAMAKER B' M. C. HART 100 REM C-64 BASIC LOADER 110 :

120 FORJ=0 TO 169:READ X:POKE 53000+J,X:T=T+Y:NEXT 130 IFT()24979 THEN FRINT*DATA ERROR!*:END

150 :

160 PEM SYNTAM : SYSILOCATION) TTART, END, FIRST-LINE, INCREMENT

1 0 : 1 200 DATA32,129,173,32,247,183,133,252 210 DATA32,251,32,253,174,32,159,172 220 DATA32,247,183,123,254,137,557,35 230 DATA223,174,32,375,187,134,7,185

240 DATA20.133,162.165,21,133,164,167 250 DATA0,172,26,169,147,22,210,255 260 DATA156,167,167,164,22,205,189,167



HANDIC Software have developed a range of fast action and adventure games, oo disk, for the Commodute 64. O-hop (illustrated here)—is a game lealuring superb i done graphies mystlek action and some yers eale educations.

unjures glistifick accoun aim some virs ende edutarters in en paramat of him ke has to be er-informed in a race against time aid no server opportunit and the blocks between the confirmation and the blocks between ceto more discovering of the virus ward to larv

SPAFIRE

SITUE MINN

STAFIRE

ONLY

 ◆HE-4th SAN DELIVES Wallable from some murrest computer dealer

th arrest computer dealer or ellip the coupon



For semptific and educational rise LRW 64 is an ideal look equations and their araphs and those who want to find out how Type in the lengther or equation and GRAF 64 works it on GRAF b4 call that with simple functions like surply to complex consilium like e" reformulated tises the Simpson & Richardson arethod when examining areas and the Arates Ralphon sections Once the graph is the option to pant the graph or routings to find more graphical sultuare dealer or ello the CHUROR lar more information



GRAF 64
For the Commissione 64
GRAF 54 is an easy to use mathematical aid for the studying of complicated equations functions and their



lictual

program will overwrite

The program requires certain information to be able to carry out your wishes. It has to know the Start and End addresses of your machine code

270 DATAIR, 37, 210, 255, 165, 41, 22, 210

CEO DATALUS. 16F, 17I, 33, 310, 255, 160, 0

290 DATA: 32.87.177.251.170.152.32.305

210 DATA294,197,282,206,7,54,165,253

IEO DATACA, 165.C. 101.162.133,152,144

740 D'TAI.ZIF.164.200.29.165.20.2.1

400 BATA117.77.015.171.77.94..44..7_

270 DATAZO, Z08, 145.32, 215, . 7:, 14., 25.

JPG PATATIC, 179, 166, 162, 168, 164, 75, 265

777 DATACRI, 9, 240, 9, 127, 44, 32, 210

program. It needs to know the number of the lirst line you want it to create, and the line increment

(usually 10). This information is contained within a SYS command with the syntax: SYS (the location after the POKE in them in.
line 120) Start address,
End address, First line
number, Line increment
(Return)
and them in them in.
Start address of the POKE in them in.
The results of the POKE in them in.

For example, to convert a machine-code program, located at 49152 (SCC00) to \$3247 (SCFFF), to start at line 1000, with an increment of ten, enter the following \$392475624915 \$3927

SYS(32768)49152,53247, 1000.10 The program should

produce a full page of Data sistements, with a pair of numbers at the bottom. Press the CLR/HOME key (unshifted), and press Return until the cursor sits below the last Data line. This enters the Data statements in the same

them in.

The remaining two
numbers indicate the next
Starl address, and the
next line number

respectively. Enter them in the next SYS command as belors, until the READY message indicates that all the Data statements have been created.

To turn these Data statements into a proper Basic loader, add the lollowing lines: 10 FOR X=(stort

addrsss)TO(end address):READ A:POKE X.A:NEXTX In line 20, you could insert a SYS command to

start the routine, or a message, "PLEASE WAIT".

The Financial Spread Sheet to the
COMMONORE 64

A play of additional distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a special distriction of a majority of a special distriction of a speci

lictual 2

SPARKLE — FOR THE

UNEXPANDED VIC 20

HOW TO TYPE IN VICTUALS

How we reproduce listings

We have two methods of presenting beings. When we can we run them through a conventer program that replaces the hierophyphic control dodes with since

Wkeeyexsee	It желла	And you	
[CV]	cursorup	press the cursor up key (skirfed)	7
[CD]	cursor down	press the 'caper down key	1
(CL)	cursurien	prose the cursor lot key (shifted)	When you see at
(CR)	Cursov right	prose he trustor puls liver	of the codes prefixed by a
[MOM]	Clarice to the rog lefthand occupy	Presche HOME Rev	number, you mus
[CIM]	closs	promite CLiting (sinfed)	press the appropriate key
(DEF)	clungs to steets	presents (NSpect (Next Selection)	the same number of times
(BLIC)	change to block	presente BLK key (CTRL and)1	for example
[W307]	charge to waste	presente WEIDney (CTFL and 2)	[35PC]
(RED)	chinge to red	press the RED key (C1 KL-and 3)	means - press the spacebar three
[CYM]	change to cyan	press to CYNkry (CYKLandil)	trees
[PUR]	change to psigple	pression FUR any (CTRLange)	[SCD]
[CROI]	change to gleen	prose to CRN3cy (CTPL and D	means - press
(BLC)	ohunge to blue	presente (\$4,0 key (CTVL and 7)	'cursor down' key five times
(TEL)	change to police	pressible YELlary (CTRL todit)	
(MEY)	F#VEYSZ GIR	press the RVS ON Very (CT RG and th	1
[013]	16verse of	proseibs BV\$CFF key(CTRL and 0)	1
[SPC]	space	promite space bar repeatible specified tumber of times	

press specified key together with CSM key

CREVERSED HEART

REVERSED LABORAGEDES

SE-SERSED SHIFTED .

These listings we generally rin out on a letter quality printer, though, and conventional graphics can't be handled on a daistywheet. So some listings are done on a Commodore printer, in which case you may see the standard control codes.

1	(utius LEFT Units FIGHT	PERENCED LEFT SOURCE BRACKET
THE F	NET C'LONE Y') SUPO . BI SUPO . BI SUEL . BI SUPO . BI S	REMERSED THIFTED FY REMERSED TO REMERSED ST REMERSED STRUMBURGHE-SHIFTED R

This little gem (sorry) produces a sparkle effect guaranteed to brighten up any screen. It's quite a ciever technique, too: POKEing

H's quite a cfever technique, too: POKEmg random numbers into the re-defined graphic area of memory (7158 to 7679) produces the effect teminiscent of explosions or shimmering prizes.

teminiscent of explosions or eliminering prizes.
Line 5 defines the graphics, hie 10 displays
them on the screen. Line 15 performs the sparkle
operation, and line 20 sets up an original defined
character (the famous 'smaley face').

by S. Johnson



5 PRINT"[CLB]":POKE52,28:POKE56,28: CLR:FCR:=7168T07183:REABA:FOKE1,A :NEXT:POKE36 869,255

10 FORP=11350:G=INT(PND(1) #505)+7680 :FGKEG,0:POKEG+30720,4:NELT 15 FORT=11020:FORS=7168107175:FORES,

INT(PROCE) #255) +11HEXT: HEXT 20 FORS=7168T07175: POKES, PEER (\$48)

:NEYT 25 POKEJ6869, 240: END

30 DATA6D, 56, 165, 129, 165, 153, 66, 60, 60, 60, 66, 165, 127, 165, 153, 66, 60

READY.



Less than human, far more than mere computer The flydror control the mainter behalf of Introlation. When the the flydror control the mainter behalf of Introlation when the chamen brown who gold, computer cross scrembled. Damage normy sector of the base must be assessed and the effect on the fabric of the evaluations on control arresponding to the fabric of the evaluations or accessory but if the Paytron ever goes down.

The Spectrum top-seller now converted to the Commodore 64 and better than ever

PSYTRON

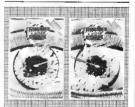
Stunning graphics, animation which makes other programmers gasp a 20 page booklet of hint ups and help with the discovery of each of six levels of play

> Both formats now available at all good computer game shops









Computer and Video Games, Britains most popular computer games mouthly bring you two exciting new books for the

Each 100 page book contains up to 30 brand new games checked and prepared by Computer and Video Game's requiar contributors

At £4.99 the best value on the market at all good bookshops from November or send to EMAP Books Bushfield House, Orton Centre Peterborough PE2 OUW

Computerama



8.95

Computeramas

CHALLENGING SOFTWARE

They have manipulated man for tens of thousands of years. Only now hove we discovered it... perceived as a threat.

A character you can really control, reacting realistically to every twist of the jaystick, as he jinks and leaps in and out

Please sendime Ps I Warrior | Commodore 64 £9,95)

From the authors of Psytron (Commodore 64 £7.95) Order Hotine 0858 34567.

Enquines 01-837 2899.

Lendase a Postal Order/Cheque payable to Beyand, or charge my credit card

Card Number ____ Access/Visa (Delete as necessary)

Nome

Address

Post Code Please rush me deta

the Beyond Club! Beyand Competition House, Forndon Road, Market Harborough,

Lescestershire LETP 9NR

User-friendly design—Part four Tying up the loose ends

by Chris Preston

In this last article in our series on User-Friendly Design, we are going to consider all the other little' things which go to make up a good program. Little' is in inverted commas because, as you may have noticed, these little' things sometimes take an awful lot of programming—which is why they tend to get neglected.

The 'Blank Screen' Syndrome

Never, was leave the science blank You should views tell the uses that something is happening, even if you don't shews the high to not be whet it is — a uses might be quite happy with "WRITING ERCORD TO DISK" but get a title wound ebout or YOUNGERTING SOFT ERROR; O'ERRING FAULTY SEEK OPERATION" so we tend do to give too much detail about them, when though they happes all the timen any give favore.

time on any disk drave. Bencally, the user just wants some confirmation that the machine is doing something. A little more subtle then the

Blank Screen Syndrome is they nasty shebit of not showing on change on the screen after a key has been pressed. If selecting option 5 on the men measus that the progrem has to spend live seconds cellculating belone displaying the secult, put a

displaying the levels, put a message on the screen easying "CALCULATING DEPART- MENTAL TOTALS" Otherwise out impatient operator is going to keep on pressing the 3" bulking muttering "Come on you (explictive disinted) mechane" and then have to wait to 150 seconds

while the obedient computer calculates the totals ten times over Which brings us to our next

Don't clear the keyboard queue

On all the Commodore machines there is a keyboard quare which allows the operator to 'type ahead' that is, to enter data on the

keyboard fester than the program can accept it Some programmers gleefully put a spanner in the works by



program comes to a new mesu; which is ellect datables that facility. You can easure that this makes it eases for the line-time uses to use the program, because he or the doesn't get confused if two keys are pressed by matches but you should remember that hirst-time uses is only e first time uses in only e first time uses once me delivor curses.

got the hang of the progress, he or she may went to rettle oil helf a dozen keys and then take a mouthful of coffee while the progress catches up

Research into factory working procedures has shown that mechane operators are much happen if they can work at their own pace rether than being teed undly to the mechane's timetable Being able to everage 12 proces per mitoute is much easier than having to do one every five seconds, even though it may boul down to the same thing in the nourse of e shift

HELP screens

on the screen should be enough lore seasonably experienced operator to use the progress without any frouble. But there will always be inexperienced users and anyhow, from lime to time everybody comes to a peri of the progress which is used only once

So we need to be able to give people on extre hend. There is always the operator's manual, of course, but the'ts locked up in the blue filing cabinet and only. Manuse has the key end she's off suck again.

So what cen we do? Press 'H' is it Help and hope that the program was written by a decent programme. A proper help leadily should fell the uses in some depth whet options ere exhable at the spont in the program—what exactly they are, what they do, end as on.

The information would really have to be held on disk or on BOM, as loading 20XB or so of text from cassette would take rether a long time so I suppose I'll have to telent for programmers running tepe systems no a 3 SXB Vic

A leage peat of the operation of

sty progress typically consists of telling the progress what to do next — "Parts list of all customer nemes and addresses", "Entor today's invoices" and so on These angle key options are best headled by meets of a 'meau' such se the one on page 52

Attention all Commodore 64 owners with a 1541 disk drive

MPS TOOI KIT

- Single-drive 3-Pass Disk Backup or individual tracks * File Copy - transfer any number of files at once, up to 232 blocks long
- * Disk Error Locator also checks for proper header.
- DOS, ID's & catalog, with printer option * Disk Error Maker - makes 20, 21, 22 & 23 errors.
- necessary for proper backup of protected disks * Disk Drive Monitor - address the drive's Internal BOM
- * Disk Doctor dozens of uses, rend and change sectors, recover lost data * DOS Changai - Protect your own disks
- . Disk Log displays all files on a disk, including start & end addiess, beginning track and sector, with printer nation
- * Loading Address Relocator * Nick Test
- * File Recovery *Compactor * Plus many more useful features!

Beware of imitations! MPS TOOLKIT is the only disk utility for sale in the UK which includes all this at such a low price Comes complete with instructions is easy to use

MPS SOFTWARE ALEXANDRA GROVE, LONDON N4 2LF lenhone, 91-800 3592



ZOOMSOFT

Commodore Software Specialists

Title TOULDER DACH	1677	616	Title	CMIC	210
- HOME ASSINOR	1.85	10.15	DESTRIF NOWTHERN	N.A	21 10
DRISTLES	1.11	10 15	MARLIN TYPE	54	22.70
ASRO DINISE .	1.55	ID 55	MASTER TOPE	NOM	3275
Title (LOI -	1.85	10.65	SPIFTE NAMED		89
THE HUBE		12.05	STRANCED.	715	No.
		14.95	HTTER INCOME.	218	26.85
		12.95	MASK OF THE SUR	51	21.75
KONG SENIES LINCE _	710	214			85
2000	1.95	17.25	SPRIL WELLIO	2.0	24.15
20KE 1 .	8.6	51:25	I CORDIST TON LINES	1.15	88
25kt n	5.6	1125	2940	1 95	12.51
ZSAN A ZSMO (A SI OUCHES)	9.6	11.95			8.6
SI euchoss	See.	11.35	ZAGA MISSION _	755	2.15
		11.25	ANT ALLIGOS	1.03	8.6
INCOMITE	#15	17 15	ISPONAGE	1.55	**
		37.55	WR NOT CE	1.25	11.15
SAM .	N A	41.55	PRIVATE ACT.	1.95	
		12.95	Discounted	135	12:15
ATSOST JNCK	7.05	Na	SEACH NEWS	116	
NATO COMMISSION	516	12.05	LAUGE III -	14.95	14-15
1HE SONCERUM CO.		10.70	XNICHTS OF THE OCSEN	14 15	1455
CLAYWONGUE CASTLE	0.05	13.65	COME OF THE GENERAL	1415	14 95
TRULIE WALLE	8.15	815	TIGERS IN THE SWEW	14.15	\$4.96
BALT FEOMISHIS		2.17	DITTLE OF HENNANCE	1435	14 15
DECEMBERON	7.95	0.4	Trus wice	14.55	14.03
DECREMENT OF FRONT ER	7.95	5.0	of Street	110	14,95
Sidle satt 64	7.92	65.75	AUTOMON PARTITALISM	NA	\$1.85
SUITO SASE GO	114	25 (6	PERSONAL ACCOUNTANT.	100	11.95
ACCENTURE DELATOR	804	20.00	SHATHICS I NOC	25.50	NA
OILS WITH	2004	21 15	HOUSEAGED FRANCE.	9.4	25.50
BEYOND CASTLE	100	21 13	HOUSEGED HISPACE.		24
MUSTER	N.A.	27.95	261.0	0,6	54.25

100's more titles available. Send S.A.E. for free catalogue. Send cheques, P.O. to: Zoomsoft.

46 Huntsworth Mews, London NW1 6DB. Telephone: 01-723 0562.

CRASH-OUT problems? Add a RESET facility.

The STAGSOFT RESET BUTTON end CASSETTE will retrieve your BASIC or M/C code progrem without power down.

RESET BUTTON:

- CBM 64/VIC 20 compatible
- Simple plug-in to SERIAL I/O PORT
- Disc sizes plug into second I/O SOCKET
- Full operating instructions include

ACCOMPANYING SOFTWARE

- · provided on C5 tape in library box

- · once loaded, software will Autorun

You can new up grade your computer by ordering Only £6 inc. P&P. Overseas orders add £1

Send cheque or P.O. with address to: Mundy & Roberts Ltd., Box No. 11, 5 Crompton Street. Bury, Lancs, BL9 OAA.

SELECT ONE OF THE FOLLOWING OPTIONS: 1. UPDATE CUSTOMER FILE.

- 2. ENTER INVOICES AND CREDIT NOTES.
- 3. PRINT LIST OF ALL CUSTOMERS.
- 4. PRINT ADDRESS LABELS.
- 5. PRINT CUSTOMER STATEMENTS.
- 6. PRODUCE AGED DEBTORS LIST.
- 7. FINISH PROCESSING. An Aged Debtors List, by the

PRESS 1-7

way is not a hit list for OAPs who don't pay their bills it's a list of all customers who owe money it as usually arranged in columns - "l month', '2 months' '3 months' so that the accounts denartment can see who the bad pavers are When the mous is on the screen

the operator has to press only one key in the range 1 to 7 to move on to the uest job - using the numeric keys monus that the operator does not have to seatch There are cases when we might Y", but usually that only applies where we want the operator to stop and think (something you

should normally try to one screen in this case we have meuu and a nu,- ber of sub

Handling disk errors

People are very fend of knocking CP/M's famously enigmatic disk error message "BDOS ERR ON unsustilised, alter all, what else do you need to know apart from the fact that a disk error has occurred on drive A? Do you really want to know that it is a read verily error

What is unlergivable though is the fact that the user is not given any chance to try again. You may the drive instead of the correct one, or you mucht have out it in apside down, or you could simply have lorgotten to close the drive

Many programs suller from a FOUND", they say, or "WRITE PROTECT ON and they then just stop? Alter every desk error give the option of either retrying or ahandoning the operation For

CUSTOMER FILE NOT FOUND ON DRIVE 1.

PRESS (A) TO ABORT, OR < B TO RETRY >

The operator can now make a choice - whether to give in aud press < A > , or out the right disk m the drive and press < R>. Notice that this is a case for using letters, we want the operator to think about what he or she is doing, and there is a danger from adjoornt keys such as '1' and '2'.

This is also a case for cleaning the keyboard bufler Il the operator has started to enter data beginning with an 'A' he is now going to be in trouble At this point some

rogrammers will be starting to helf and null aud say. "Well that can't be done in this program access caused the error". Or

Il that is true, those

programmers had better rewrite their programs - because they must be posity awkill There is no expuse for not be no able to recover from an error because of lack of information. All it needs is a decenfly-written program



tuctuO

The output Irom a program may or the printer. The same considerations apply to both, so

The publical should of course have a heading at the top of each produced For example we may have a program to punt out data heading saying 'CUSTOMER FILE PRINT" is all very well if the pregram is ocion to print out all the customers, but if we have a selective print, which prints out

who have expressed an interest in photocopiers, then the page heading) should say so Otherwise, somebody picking up

the printout could assume that all your customers live in the Beading area The layout of the data is largely a matter of common sense if it is

arranged in column format, then printed at the top of each page. Numerical data arranged in columns should be lormatted so that each figure has the same number of decimal places, and the decimal points should be aligned: (see ower)



GOOD BAD 0.25 0.25 1034.00 1034 0.05 .05 -1.40 ~1.4

The only other point worth mentioning specified by a that the report should be interest to suit the points much as going to read it. If we here an automatic assembly machine turning out widgest, the production manager is going to want reports our product quality and quantity so that he can be sure that he is meeting his sure that he is meeting his sure that he is meeting his

production targets
If 20 per cent of his production
is leally, then he is going to have
to get his memberence stell to
look into the problem

The pleusing department on the other hand needs reports on the other hand needs reports on the costs of unumy the machine—the cost of the rase materials used, cost of the electricity used, this maintenance costs, genered siff and administration costs—as well as the production figures. They cau use assess the total cost of producting a widest and so set the adding price.

But although the planning department wints to know the production date, the production man ger shouldn't get a report cluttered up with various cost

Summing up

A quick summary of the most

impostant points. Notice that many of them have reservations do this but don't do that I is spart of the skill of programming to get the "that" right without falling foul of the that."

Make life as easy for the operator as possible. Don't assume that he is at good a typet as you, or knows as much as you.

- and the operator as many options as possible, so that he coe make his own mind up about how he does his job, but don't offer nane-costary information.
 - which could conlass him

 3. Lot the operator know that
 the machine is still working
 Certainly never leave him
 with the dreaded blank
- Validate all input immediately and tell the operator straight away if he has made a mistoke.
 Make the pragram as easy to use for a first-time user, but.
- even more important, don't hold up an experienced operator.

 E. Don't force the operator to enter information which you could calculate yoursell. If possible my to work out

defaults for data Helds (possibly based on earlier input) so that the operator can just press < RETURN> to accept them if they are correct.

New go to it and right some "good" programs!



Superhal 96

Since Prints | Probable to concern with the concern with the

SUPERIOR (1 Me A. DE ALIDES DE SELLE MA PRESENTA SELLE MA PRESENTA

THE CONTLINE ROOM PROVIDED TO THE PROPERTY OF THE PROPERTY OF

**** MART ST TOMORROW******* CALL US 1000**1 **** DR 01-546-725.

PRIS BROKE LOGGE STANDARD S

CS 155 WH AND ANS
GOING 10 PROSS.
I DR ANDAS, USING
SSYMMETUR CAND IN
SSYMMETUR CAND IN
CLUSS POST, PROS
FRIE PACOUNT DATA
VISA

Software

610 50

£19.00

£28.95

£14.93

€37.95

£24 99

£ 840

\$49.95

644.95

£44 95

£14.95

£46 93

£95.00

689.95

689.95

610.00

£30 00

£30.00

659/95/64.85

SERIOUS 64 SOFTWARE

Dr. Wisson Baner Course (Roseyviold):
Dr. Wisson Assembly Course (Roseyviold):
Dr. Wisson Assembly Course (Roseyviold):
Dr. Wisson Assembly Course (Roseyviold):
MDSN (Randon: Programmes Vold Course)
MDSN (Randon: Programmes Lad Good of Programmes Lad Good of Programmes Lad Good of Course (Coursedore):
Dr. Wisson Assembly Course (Course):
Dr. Wisson Assemb

Separbase 64 (Precessor) d. Magne (Audiopence) d. e. T. Magne (Audiopence) d. e. r. DFM Database 6. Labeli (Chalog) Vd. Transact, Book keeping (Dailog) Vd. Investat, Invesce 6. Steements (Dailog) Vd. Cashbook 6. VAT. Accounts (German) Vd. Pland Accounts (German) Vd. Pland Accounts (German) Vd.

t = Teps d = Disk r = Carridge (Send a SAE for e list of our full range)

PLUS - THE PRICE YOU SEE IS ALL YOU PAY

* FREEPOST (nostamp needed) two iderug *
* FREE postags, packs ging and sourance *

* 14 Day MONEY BACK guarance *

ACT NOW, by sending cheque or postal order to -

54 PLUS FREEPOST, BLETCHLEY, MILTON KEYNES, MK3 7EF

BUSINESS

for Commodore 8032/8096 and 64

500 SO + VAT

PAYROLL

Hourly, weekly and monthly basic, 7 rates for overtime or piecework, four pre-tax adjustments, including pension contributions and S.S.P. seven after tax adjustments, N.J. and all tax codes for use with principal payslips or plain paper. This payroll can be adjusted by the user when tax rates change.

INTEGRATED ACCOUNTS FROM £299.50 + VAI Purchase ledger with aged cretions, sales ledger with invoicing on forms to the user's own design, statements, aged debtons, etc. day books, You statements, aged debtons, etc. day books, You normal ledger with manual overrise, normal from the common statement of the common management reports, profit and loss and balance steet. Albe for each payrill files.

Write or phone for details and complete software list

ELECTRONIC AIDS

(TEWKESBURY) LTD 12 Drysdale Close, Wickhamford Evesham, Worcestershire WR11 6RZ Telephone: (0386) 831020



Why buy two when one will do?

The INFRASCOPE COMMUNICATOR II is an electronic typewriter AND a computer printer

ALL IN ONE

- * RS232 Compatible KSR and Parallel RO Interface
- * Approved interface for the SCM 1100 Typewriter
- Interface cables available for BBC/B, Commodore 64, Sinclair QL, Spectrum, or virtually any other micro computer with an RS232 or Centronics interface
- * Choice of 2 or 8K character buffer

ALL THIS FOR ONLY £458 Incl. VAT & Delivery (Interface Cable Extra) VISA/ACCESS accepted



The new KSR COMMUNICATOR II is now available for immediate despatch. Using the popular Smith Corona EC 1100 typewriter we have created a high quality computer printer by fitting our new INFRASCOPE interface.

But don't take our word for it, write or phone for our free comprehensive data sheet

INFRASCOPE LIMITED
Longbeck Road, Marske, REDCAR, Cleveland TS11 6HQ.
Telephone 0642 470121



THE **BIGGEST** RANGE YET

COMPUTER **PRODUCTS**

Lats of new releases, impraved

products ånd better prices Dan't miss fantastic light pen deals zap - praaf jaystick and autafire adaptar

STACK XMAS OFFERS

MAIL THIS COUPON NOW!! To Stack Computer Services Ltd., FREEPOST. Bootle, Merseyside L20 0AB.

□ CRM N

All prices allude Vat Add a & p £1 90 free or order- c == £25 00

A truly proffesional design standard light pen drawing package. You really can drow accurate detail drawings quickly and easily using this superb 100% machine code software supported by an extensive and helpful manual. Built in architectural and electrical symbols with facilities to add an unlimited number of your own symbols eq. musical

mathematical etc with others to come soon from Stock. Printing routines are included for CBM and Epson printers and custom drivers can be added For fun, ten games for the pen are

included in the pack together with two sample pictures. All supplied on two double sided tapes with instructions for transfer to disk operation. You really must see this to appreciate just how

RETAIL PRICE

28.00 24 00 20.00 22 00 (high Speed Cassette/M.C. Disk based complete 26.45 EEE 488 10.00 15 00 (For use with Vickit 4 - provides Super Help Carl 25.00 16 00 Cartnage 26.45 24 00 Ram & Rom Carner 9.20 5 00 1.75

Analogue Joysto 15 00 7.95 1541 Dust Cover 3 25 1526 Dust Cover

Full range of Leads, Connectors. Dust Covers etc Ex Stock at Very Competitive Prices

2 00

1 83

2 35

2 35



Light Pen CBM 64 or Vic 20*

Absolutely the best opposite-100% first machine code Featuring -Freehond draw, Nib size, Circle, Box, Fill, Line, Text, Zaam, Animation, Put, Get, Save, Load, Print, Lock X, Lock Y and 10

Supplied on tope -

£28.00

Stack Light Rifle



A unique game system for Vic 20 or CBM 64.

Load one of the three games included and shoot the cawboys, rats, convicts etc an your TV from up to 10ft oway Complete full colour and sound

CBM 64 Compiler

Turns your normal bosic pragroms into very fast machine language like code

Disk based £9.95

4 SLOT Motherboard VIC 20 & CBM 64 A high quality switchcoble expansion unit with

gold slots enabling up to 4 compatible contridges or RAM packs to be simultaneously inserted and fur on or off at will.

£28.00

HELP C64

£15.00

CENTRONICS INTERFACE VIC 20/CBM 64

ARROW C64

A very high quality strengthened cable (not flimsy sibbon) Together with easy to use driver software on cossette (disk £5 extro) composable with Simplywrite, Wordcroft and many others (but not all)

£24.00

RS 232 CINTERFACE CBM 64/V1C 20

A full Bi-directional interface for Printer, Platter or modern connection Provides standard composible with any software which uses the serial part Special coble service avoilable

£33.00

ARROW PLUS

£24.00

IFEE-488 VIC 20/ CRM 64

This cartridge provides the standard CBM connector and enobles all 3000, 4000 and 8000 series disk drives and printers to work with the Vic 20 or CBM 64 Supparts normal CBM 64

£30.00

SUPER HELP C64

£25.00

£16.00 **AUTOFIRE ADAPTOR**

CBM 64/VIC 20

£3.25

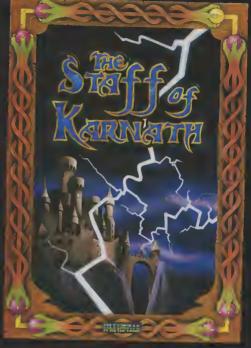
ZAP - PROOF IOYSTICK

£7.95

STACT

COMPUTER PRODUCTS

COMMODORE 64 (Joystick Compatible)



"THE SIAFF OF KARNATH" recommended retail price £9.95 inc VAT Available from W.H.SMITH'S, BOOTS, J.MENZIES, WOOLWORTHS and all good software retail outlets. Also available from ULTIMATE PLAY THE GAME, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU (Påt' included) Tek 0530 411485

A STAB IN THE BACK FOR BASIC?

An alternative language to Basic and machine code by Andrew Collin

STAB is a programming language originally developed at Strathclyde University. One of its offshoots, STAB-1, is a language specially written for small computers. It's not only portable but it provides the ease-of-use of Basic with the speed of machine-code. STAB enthusiast Andrew Collin, who recently set up Talent Computer Systems, introduces the language and explains why Talent is using it to write games and utilities for the Commodore 64. You can't acquire it, though, for your own 64 - but that could change if there were enough demand

If you own a Commodore 64, you won't need to be told how hard it to to program 14 sentra writing a small simple program. Basic will serve you wall, but as soon as you start on anything complicated, or try to use the graphics and sound facilities on your machine, Basic just gavas up You'ra lelt with a mass of PEEKs, POKEs and machina enda routinas which taka ages to gat right; and evan then your program won't non as last as What's the secret? The wise old

men ol computing (actually they tend to be about asymptom, so let's say thay're old in axpariance! will tell you that their programs are written in '100% machine code' It's true that a mechine code program knows up restrictions about what it can aud can't do, and parformanca from a computar, but have you eyer tited writing a large program to mechina coda? There s so much paintteking datail were all designed to run on main to worry about, and so many breme computers Thay don't give pitfalls for carelass mistakes, that the whole process to a return to slavery Computers are supposed to get nd of mindless drudgary, for micros is much more

The solution to the problem is obvious once the pointed out. We mand a high-level language (that is, one which sllows expressions. variable names, subroutines, loop structures end so on) which also gives you lull control of the computar and is capable of running as last as machina code, and they would still run just as last Since you could now ellerd to throw awey had but ol program and rewrite them, your final product they have been doing research on programs split naturally into pro-



might even be better than if yet programming methods for had managed to write it in 190% That are lots of computer lan-

quages around. The best known ones apart from Besic are Fortren. Cobol, Lisp, Pascal and Psolog Unfortunately these languages you full control over the machine. and some of them rup vary slowly (avan on mainkames) The choice

good connections with the so often area il you try to do the Department of Computer Science same thing in Basic at Strathelyda Uusversity, whare

number of years One of their products is STAB 1, a computar language specially written lor small machinas This language is portable, which means that you can apply run it on any computer won like.

Looking at STAB

What is STAB-1 like? At la glanca, tt's quite similar to Pascal. thing you like, and the names have When Talent Computer Systems limited scopes - which is the Comdecided to anter the home com puler Scientist's way of saying that nuter poltware market, we faced the names only here any meaning this problem in acrata form. We over a restricted part of the prohad lets of share for new products, gram. This fact helps anormously -- like other soltwere with building large programs, becompanies—we were a bit light on cause two or more modules on a be sensuses to turn them tate limited stuck together without worrying products Fortunetely we had about the letal name clashes which

Another leature of STAB is that

cadures, each of which does one sumple, well-delined tob The proconferentally to each other through a system of arguments or paramaters, a bit like the near-dalined lunctions in Basic. The key dillar ance is that in STAB the proca dorse aren't limited to one line but can be as long as you like A procedure can call another procedure It can evan call itsell. which lets you use recursion

Also, STAB to espacially wall adapted to handling penpharals The way ti does this is yeary simple One of the 'data types' in STAB is called CHARVEC That's not complicated, trajust like an array in Basic, except that each alament is a character (or a byta) rather than a number. There's no hunt to the length ol a charver, and it's guste easy to declare a charvec which covers the whole address space of the Commodore 64 You can then relat to any parmbere! register must by using the right subscript

Procedures with STAB

To give an example, consider the following eachou of code, which comes some character definitions into the RAM at address 12288 The Bess instructions are taken from the Commodora 64 Programmar's Ralerenca Guida,

- 20 POKE 58334. PEEK(56334) AND 254
- 30 POKE 1. PEEK(1) AND 251 40 FOR 1=0 TO 511: POKE \$+
- | 2288. PEEK(|+\$3248): NEKT 50 POKE | PEEK(1) OR 4 60 POKE 56334 PEEK 56344)



The corresponding bit of STAB-1 might beroutine copychars charves source charves destination

let 1.pz=.56334 I mentipr and .254 -> menting

memt t and .25t - > memt

do I = 0(1).511 memtisource+t)-> memfidestigation + ti memit or 4 -> memit

memter or ! -> memfer

his is an esample of a procedure. It might betp to understand it if we mentioned that decimal numbers are preceded with a full stop. numbers are assumed to be in the scale of 8) The shnekmark is a subscript operator so that membe means roughly the same es MEM(Q) in Basic, Flordly. -> meens "cestign". Assignment statements are written the logically correct way -- work out the expres sion on the telt, and then put it into the address on the right Most people would say that STAR as sognments are written backwards. but then most people have been brought up on illogreal languageas

The procedure does nothing by tiself. When called, it will move \$12 characters between any two places as defined by the parameters source and destination. If you ectually want the characters to be copted from 83248 to 12288, you would write a routine call like

copychars(.53248..12288). The second way that STAB helps you controt the mechine is the provision for handling interrupts. You can write your program to include e special routine or network of roubnes; and you can arrange for that routine to be called sutometically every time an interrupt oc-

To gave you a little more of the flavour of the language, here's a complete program to calculate and print prime numbers, using the method of Eretosthenes' slave.

2*j ->k

that STAB is a better language for wirting large progrems than Basic The trouble is, you'd need a lerge example to prove the point ti'e worth mechoning that all of Talent's products are written in STAB, and they tend to be between 1500 and 2500 has long Most lines contain more than one command

Runningspeed

What about spared of execution? The most elegant and sophish greens in Basic tend to be programs just crewi along. To memory space is given over to ment for speed. It takes a normal explain how STAB programs storing them manage to run so quickly, t'd like to begue by remanding you of the benefits don't come tree. The difference between interpretation interpretat has to analyze every and computation

The Bessc which comes with so that in the loop. your Commodore 64 is interpre- 10 FOR Q=1 TO 1000 tive This means that as you type in 20 A=A+t/O your program, it's put every in the 30 NEXT Q memory character by character, the command at line 20 ss not only machine codes other they run last, with only a tew concessions to obeyed 1000 times, it's also The others are interpreted and run computer chays your program asme each time round. This makes statement by statement in every interpretation very slow, and the case it begins by enalysing the computer creeps stong at about 1 command, working out what it percent altutrue potential speed means and making sure that there curs—for any reason. There is no ere no errors Only when the is compilation Here the program need to write any mechane code at meeting is clear does the is enalysed once and for all, and computer actually obey the trenslated into assembly code be command by adding dumbers lored is run The major adventage displaying a string or whelever if he that it will now you side you may he

Despite the annil's pace, inter

the mechine, and you can hat a end obsage if whenever you like Another adventege is that pro-On the other hand, those statement every time # is obeyed

spece like abbreviated keywords ametysed 1000 times; and of course more slowly, but then they take up When you knally any RUN, the the results of the enalysis ere the kardly any room in the memory The alternative to interpretation to that it will now run at a speed much nearer to that of machine memory and a 69000 macrocode (not full mechine code processor — not the kind of because computer based trans- machine you kasp in your living letors - compilers as they are room called - ere not es clever el

> The corresponding disedvanlages are many First, the transtoted version tends to be hulker. to take up more memory spece than the original version of the done, but it would run rather stowly) Third, program development isn't so easy because the whole program has to be retranslated it any olit is changed

Compile or Interpret?

human coders)

Which is best, interpretation or compilation? There is no simple

devaloping and leiting progrems | enswer. Clearly, some parts of the The original progrem is always in progrem you are writing here to run es fast as possible to keen un with the outside world. Other perts, such as those which display screens or writing or accept typed cated language is useless if the compact, so that not much input, have no special requireperson several amonds to read a screen, so it doesn't matter whether the screen oppears in 1/1000 or 1/10 of a second STAB-1 lets you mix interpreta-

tion and compoletion in the same progress When you write your progress, you can choose the procedures to be translated into

Would you like to get a STAR.1 compiler/interpreter for your Commodore 64? I'm afraid you cen't, unless you've got a WICAT sucrocomputer The STAB comprier has never ectuelly been transferred to the 64 Instead. Telent does all its program development on the WICAT, a powerful mechine with 256K of Programs are written and tested

on the W:CAT At a later stage, they are sent down communication lines for final testing in the 64 tiself or any other home computer Let's summarise, STAE-t tets you write turns programs which progrem. Second, the compiler is from fast and give you easy cona complicated program, and it is trol over the hordwore of the difficult to shoe-horn it into a machine. Furthermore, STAB computer like the 64 (It can be programs can be tuned so as to get the best trade-offs between space and speed, and It to easy to get the same program running on several ditterent mitros, it all sounds pretty uastul. As we said earlier. STAB is not available to people who have only the Commodore 64. But this could change it there were enough demand!

Prime numbers by Erctostheces' stees charves et.5000) routine pr X † Display vatue of x if x > 0 then (pr(x/.10)/printch(x rem .10+0))routine main let t.k 12 - > 1 white [< .2500 repeat | if et = 0 than I

while $k < .5000 \text{ repeat } [! -> stk_l k+] -> k]$ 1+t->1

Now print out numbers where the elements of the Sieve cre etitt 0 do I=2(1) 4999 I if stj = 0 thea [pr()); printch/*L')]

For High End C64 Users

Introductory Offer

NLY £ 69

Limited to orders received between now and innuary 31, 1965

- Print your letters with professional quality and speed See your program fistings printed as you wrote them. · Get a 70 second screen dump in Hifles
- Print multicolor in grey shades
- For Ebson, Star and other 8 dot matrix printers

Multi Function C 64/SX 64 Printer Interface Manufactures

- Menassaner
- Power requirements
- To upil tecnniary address

 In commodary Case possibility and and executed

 Commodary probabilities commod and inversed

 In commodary probabilities commodated executed

 In program hadron planes contributed existen reflected executed

 This planes in contributed. ACC in right interrupt has proper contributed.
- Anthropology (above scaled copy of closer) ((wag pullip) Anthropology (during) (schemp potitive on lover preside seess evich (positive) or "negative" in about 70 personals. Anul (7466): il abbor of principle of different gray phaetin. 317 parcial to exist (abbor feedwald or illergoly) menu.
- Printing graphic stress that exercise
 Printing graphic stress that exercise of houses

Turn your COMMODORE Plus/4 into a comprehensive

business system with

The complete business accounting system that's simplicity itself to use. Think how it could help you in your business.

£98.95 + VAT

Payments & Credits

■ Suppliers Details/Re ■ Lin to 550 Accounts

 Multi Form Facility ● Invoice Levoy 4 otnovers

■ Lip to 550 Accounts per dr STOCK CONTROL

 Percent Profet Report ■ Full Suppliers Datais

Parila & Loss Ancourr # Balanca Sheet • Help Meru • Total Balans

micro Por justif£113 ff0 (inc Post fi Packing & VAT) you could simplify and speed up your toutine paperwork as have hundreds of issueded users. Ping 01 900 0999 now qualing your Access/visa number

IMPEY SOFTWARE LTD.

CBM 64 GAMES from bubble bus fast action shooting e Sua Soffence 97 High Street, hone 9732 255985 Takes 95151

MUSICALC Synthesise: 4 Sequencer	\$49.93
MUSICALC 2 Scorewrater (Requires CBM 1525 or Epson Printer)	£34.99
MUSICALC 3 Keyboard maker	£34.99
Tempiate 1 (Lann)	£19.99
Template 2(Rock)	£19'99
Beat File (Drums)	£19 99
SPECIAL alithe above	£160
SPECIALI MUSICALC 1 3 and 3	£110
MUSICALC demo-disk [refundable]	26
MUSICALC demotepe (endo) [refundable]	£3
TOTALS	
proces include VAT and UK P&P. Add over	stress postage of

Tack here if you'd like to go on our mailing list for future MusiCalc amouncements

Mail your order with your payment to. MusiCale UK, The Metropolitan, Enfield Road, London NI SAZ

NAME:

Koch

The Forth Dimension: Programming with a DIY Language Part 4 — all about structures

by Richard G Hunt

In the previous articles in this series I have discussed briefly one of Forth's most useful structural words [DO...LOOP]. Together with [IF...ELSE...THEN] and [BEGIN] these words are the cement that binds the building blocks to provide style and form. Without them, to extend the metaphor, Forth is a house of straw!

Structura is important in agy language, not least Forth Structured programming samplistically a buzz phrasa lov thrakma it out and gatting it night first time — is imposed on like Forth programmar by the language There are three vary alaman lary rules of structured biodiamming.

- Each operation is sequential. Conditional operations allow brauching according to the stala of conditional flags execution of year where condition is live, yyy d lalsa,
- and are after xxx or yvy Rapatitive oparations exacuts xxx continually until or while a conditton yyy is true, when

axecution proceeds to sas Rule I is supported by any systam structural commands in the programming language. This is how they apply to Forth

IF...FLSE THEN

conditional as (Condaton) IF (axecuta true words) ELSE (executa lalsa words) THEN (continua) As with most languages the ELSE part re optional It is of course the stack that causes the order of the components Avaluator comparison must be on the stack last for comparison to take place Consider the following GETANS . "DO TOU WANT

ANOTHER GAME? (Y/N) KEY 89-IE STARTPROGELSE QUIT THEN !

The word expects ASCII 89 ("Y") 96 to be pressed in order to call the

word that men the name otherwise QUIT is called which zeturns control to the keyboard Note that any value other than "Y " ends the game, thus capturage wroug kawstrokus. The duadar (that means a satel two) relational operator '=' takes two yak es bross the stack and leaves a lieg which is [1] if the condition is true or '0' if laise IF takes the flag and causes branching to the appropriate code dapanding on which lied is present It follows that IF can be used only within a colon delization. (This applies equally to DO and BEGIN balow) Tha IF structure ma fraquant and powarful statamen) It as possible to uast |F's lake this

:MENU (Input from kayboard) 1 = 11 prog l else 2 = 11 prog2 s las 3 = if prog3 alas 4 = if progfalsa 5 = Il prog5 alse gutt then than

thes

their

than: This is possibly not so neat as a CASE structure (as in Pascal) but rl you are that concerned, Forth. supports other ralativa operators

[<]lessthan [>]gragterthon [0=] and [0<] both compare

Other operators seemingly messing must be debreed : NOT 0 = ; (ravarses truth of flag) 1 < > = not;

1 <= > not: 1>= < not; 10 > 0 < not :

The DO...I OOP

This is perhaps the most common of Forth's rapetrive structures 1 earber articles and amos example m on excallant teacher, hare are some wave to use DO...LOOP-

TEST or 8 | do 8 | do [] * 3 .r good to eco 2TEST or # 1 do # 1 do # 1 * 1 * 4 .r loop cr loop ; : 3TEST cr 6 1 do 5 1 do 11 * 11

*44.: loop or loop : : 4TEST cr 5 1 do 5 1 do] 1 * dup ** 5.r loop er loop; Thas are examples of how to

Creats vectors and matrices to a very simplified way. It cannot commars with the concreaness of with caratt can catar for most normal requirements. And lew more readable! The loop limits 22-cofung scream and may be made largar for the 64. Try to work out what each axample does belora you anter zi, remembering thal T letches the loop country from the top of the return elack. and I the next incer loop counter Iron the second position on the return stack Finally on DO loops

> end by using LEAVE, once a givan The BEGIN structure This structure has several possible flexibility:

condition is blied

 BEGIN (axecute Forth words Irua condition) UNTIL (contrace)

 BEGIN (true coudmon) WHILE (axacuta Forth words) REPEAT

· BEGIN (axacuta Forth words)

The littet option allows the choice ol detarmining branches out ol a loop at a grean crrcumstance, that ze when a specific condition becomes true. In a game, a REGIN loop may determine the continuous runging of the

program at the highest level RUN REGIN DI AVIDEAD

PLAY would invoke all the lower level words that make the geme, schula DEAD would know track of the score or number of lives used and so on Now try this example. You'll see that ?TERMINAL lasts

: STEST BEGIN ,"HELLO" PTERMINAL UNTIL:

The second option allows the zavezes condition to be datarminad. In this case the loon rapoets (at REPEAT) as long as tha condition remains true, or conversely what the condition becomes lalse. As a thacretical axample this form could be used to count loops and repeat while, say, STEST BEGIN PTERMINAL

NOT WHILE . "HELLO" REPEAT:

The lest option parmits continuous looping unless the words QUIT or ABORT are met Try using this : 7TEST BEGIN ."HELLO" PTERMINAL IF QUIT THEN AGAIN .

The next article will cover mainly input of numbers and strings and will conclude with a little exercise to practice what I have preached these last few months.

Le4 [N]

In mining Tin Cupe is an amount publication compiled by journalists on Editioninal Communities with fire years' experience in the field of education and high technology The third usue of Leanure Le Cuts deals with all isperts. at computers in sureur e due reupe

This issue gaves mlormanni in the linest dereforments in bandware and special arts designed and idigital fin physically and mentally handicapped children

and alults. The purgoest made with more electronii di vices la los cu ate independenci fui ill'inha use ilient

A large propagation of Learning In Core is didicated to sufficial with a ratalogue listing all the specially descented programs for children and adults with specific nords. It also includes a numprehensive software reviews section which examines how pringrams can be used as it at large and fearning ands across a wale range of subjects Computer applications in illustrated through case studies covering such impus as remijinters and the blind and how computers) in help in simular meni ilkyliandicrossed a halda car.

Learning for Cape is the only publication (which ileals in threb with computers in sprital education. It offers practical advice and guidance as well as pages of useful metarmatana and contacts has sugar thing some cannot athind to make if you me at all connected with their aching of children and inhibs reals special educational and ds

-------------Please send me a copy at Leaning To Cupi Computers in Special Education.

Lencluse a chemic/proval order made payable to Editional Companies to 12 (including P & P) Owners are resultable on bulk orders — contagrable almined affice on 01-251 6222 per 2475

Position...

Establishment Adduss

Lundin ECIR 3AL

urprise!

There is a simprise in store in every issue of Computer & Video Games magazine Every month you Il find great games listings for your computer reviews of the latest software. The Top 30 Chart The Bugs Arcade Action, competitions and many more fun surpuses. At your newsagent on

the 16th of every month.

University Software

UNISTAT

STATISTICAL PACKAGE

MULTIVARIATE RILEUNDEN. Men untgat einzigt di estrated multiante trata i festiva de la mental de criminal estrat untal accesso de la me est policie de la mental de la mental de la mental de multiar untal de destrution de la mental del mental de la ment

ANALYSIS DE SARGANEE SCATTER DEALERSIS AND HAR SERIES PERTS THE WAR and Beauty in Combinations and the property of April 4 and a combined of page of

STATISTIE NETENTS CORRELATION LORFFEE IENTS AND PROBABILITY DIS TRIBITIES Benefit on a historical distance and mean subsets and the f

DESCRIPTIVE STATISTICS TREQUENCY DISTRIBUTIONS AND RISTOR RANG Anthro of a set data of data with language come. Row discovered and grouped Chair of lower bounds and clear internal. Absolute complexes and cribbin languages. Hategreen with up to Stirlance. Disput deplies from more incom-

All programs in shighly compatible with Manus Dipositions program in I NIMA'S All programs incidential computable with Manus Discretions program in a relative pockupa. Data matus capitale campica badinina be assaul a 886-64 (self-for ta 200), located BBL B (1794) (4-20). [Byles 48K Spectrum, falloss 5-900 [Byles B 886-64]. |dok.cac| CD , RBs | Ridok rate| DN 49K Spectrom (reducan rate) End

UNIMAX

LINEAR PROGRAMMING PACKAGE

LINEAR PRINCEANING A powerful and institution optimisation program thinding him den a page immag prible is optimization program capable thinding him delta at page immag prible is from the may any ambitration of constitution and in the individual continued deal and their solutions as deptared in standard mathematical lumi. Debianated problem and a classical and a serious and a communical memory of the problem and a classical contract parameter for approximate all inputs Capacity examples in another be natural or all 1884 84 III at 5 (5) and 40,55 881 8 III (5) (5) (6) 488.

MATRIX DPLBATEDS District transporting determined pre and post medigits mon as that medicine atoms address, and inhitiation of matters and vectors manages, there is not manages, among assument, and throughout a tradition and syrport than compact as in meta be road or the impact of the next expective softwort in types Manages on the careful or leaded or the tage. Datable, impossible with LINES. Million on the cared or leaded in the Lope Datable importing a parking Capita to CBN 64, Park 88, 8 25 5 400 Meets on Park CBM 641 (deleter) and BBM Translation) and 485 Spectron (miles arrest) \$45

ALSO AVAILABLE FOR 48K SPECTRUM INTRODUCTION TO ECONOMICS SET, 635

ECONOMIC GEOGRAPHY 19 95 4 BIBI JOFILE 19 95 POLYNOMIALS £6.95 . INTEGRATION £6.95

To UNISOFT LIMITED (Dept. C1/129 SEFFTER S STREET, LONDON SERIE The or ago once

Proportion of VAT and delinery within the UK. For indeed from Entitine add El St autori Enrope El itt per tiem fot armail post. Di alcis enquities selve



COMMOOORE 64, BBC-B, 48K BPECTRUM * Comprehensive user manual * Full data handling facilities (display, print, change, save, load)

* All results can be printed out \$



8.98

RAS

9.95

ASSEMBLER 66 Fortistian il det plupment trel. Euft atsemblet desavoni blet allewing LABELS AARIANLES PSEUDO OPS and CONTROL FOR

DATABASE 64. Mein dimen database Mir. 3000 records. 255 lettes re-urd. Is fallst record. OREATE database. ADD TYNERT. DELETE AMEND treach. Schalle Him records on non-field its ladent with and matchings? i LOAD SAVE databases in tage dick. Schiller I linusph database. (11.9) \$24.95 Prophile £17.00

101823 £10 93 F12.50 All printed by SAF full ratalogue inver 100 programs including databases was disper-

DYNAMITE NOFTWARE upper | Erec Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free Assembles 64 or grove with IRCM 8213 LONIRON WC IN SIX. | Free

COMMODORE 64 AND VIC 20

Tape Back-up Board For the Commodore 54 and the Vic 30 When a second CBM the unit is connected to the board if will make personal security copies of all types of lapte software. Price of 90 plats 50p pdp UK (Europe add £E Estewhere add £2). An opportunit earl switch can also be fitted for only £2.00 other mediane. COMMODORE 64 DISK DRIVE UTILITIES

S41 Disk Management A menu driven 39 function disk management utility. Fea. thes include edit tise's sector disk back up protect'improtect programs plus en

1541 PRG/SEQ Utility Multi part programs which includes a single PRG/SEQ file sport unscraled a PRGSEQ file program start and end addresses and som BAM Both programs are supplied with a comprehensive bookles *** special offer ***

reder both programs and ger a tape to disk unlay absolutely fine on disk (Worth \$5.50. offer ends 31 (48). For Europe add 78p, elsewhere add £1.50. Send sheque POs or Clark Kent Software,

15, Samburgh Close, Corby, Northamptonshire NN18 SPA

COMMODORF 64 OWNERS

Tape to Diak Transfer Uterty This program will place on disk a working copy of a mass 90% of at copymal speed programs. Full disk arior handling. Directory nations including acress to disk directory nations including acress to disk directory from within program. This is the beal available. Tape £8.95 Dok £10.95. Drak Backup Makes complete track and sector copies of any disk using

single 1541 disk durve Dask £10 95 Tape Backup Produces security backup of most existing lape software Tapa £3 95 Bank Manages Keeps full details of bank needunt on tape of disk including automatically notioning standing orders etc. With a bidgeting facility and a

securely code entry. Full disk commands within program. A superb, flexible and easy to use program Tapa £8 95 Disk £10 45 Money bank gustantee if not delighted. All prices inclusive of VAT and P&P.

Wishbone Software Deas CUA 8 Rye Close North Walsham Norwesh Norfolk hor the best in high quality softwa

COMMODORE 64 TOP TEN PROGRAMS 1/2 PRICE!

Decathlon 9.99 Bumble Bee Daley Thompson 7 90 Ant Attack 3D Raid Over Moscow 9.95 Zaxxon Trollie Wallie 7.00 BC Basic

18.00 Jump Challenge 795 Strap Poker 9 98 Catalogue (enclose sae) HOW? Buy them, try them totam them within one month. half your money

back Send cheques/P O to C&S COMPUTER SERVICES

144 Satclidfe Avenue Gransby South Humberside DN33 1AP



Now that we've all broken into our piggy banks to buy our nearest and dearest even more spectacular Christmas presents than last year ardent Adventurers will be keen to revive those flagging savings. What better than to solve an adventure and win a fortune into the bargain? You could win £25,000 by solving Eureka! or win a diamond by cracking the secret of Commodore's new Secret of the Stones

I have a suspecion that there are software snobs in just the same way as there are those cinema freaks who talk about film and then, only if it can be viewed in a 20-seat art theatre and portrays black and whee documentaries of the peasant struggle in nineteenth century Albania, (with Danish sub-

They are probably more numerous among advanture gamers, too. They're up until three in the morning waiting for just one turn at Mud and strongly hold the view that Philip Mitchell should be canonised (if such a thing is possible in the case of an Australian - let alone advisable) They keep meticulous notes

and maps, of all the adventures. they play. To use HELP even once is to risk immediate excommunication from this elfin

And when it comes to buying new software, they're even more critical and cynical than Saturday morning. They are especially wary of the hyped us of what happens when softtitle - much preferring the ware advertising is consisungle-figure camaradene of a game that only seven other people will ever buy But are they always right to be pofeatured in the face of pizzaz?

a little too slick, a mite too Livingstone and the talented discovering the phone number glossy, for the game strelf to be Hungarians in Andromeda's thet you must be the first to mag





Euraka - good advanture or just good hype?

the sub-teens I see scanning taken seriously? After all, there stable who brought such a re-coloured and blothy-detailed the racks in W H Smith on a are always the headstones of treshing look to games like partures which can thus be Imagine and Rabbit to remind Caesar The Cat. Given that the prize element almost instantly.

tently better than the products least, any such suspicions must be quickly dispelled. Repedig-Eureka! is a case in point, ree helps. This 250K text and in some nubite respects from Wasn't there a danger that the graphics skurrash with prehis- the public versions. Also unavclever teaser ads followed by tone Europe, Roman Raly, Celenticing full-colour pages of tic Britain, war-time Germany clout and the promise of a and the modern-day Camb-£25,000 prize would be seen as bean is the work of Jan and which offers more clues to

is obviously important, reviewers were provided, at most, elements to add extra interest. with only two of the five sec-But in the case of Eurekal at tions which comprise the game prised if even these didn't vary atlable at the time was the col- epics in which Victor Mature ourful booklet containing adds used to fight a lion with one tional riddles and illustrations hand and a glediator with the

to claim that £25,000 Even so, the sample more

than testifies to the quality and excellence of Eurekal Pottono to one side the prospect of a glittering page - because the game must surely be judged on its intrinsic ments - Eurokal se well-furnished with challenges which are sometimes en-Couragingly easy - at other times, very testing

But responses are fast and logical, and so even if your progress is brought to an abway horse or in the hull of a sinking slave ship, you should be able to figure out where you Ward wrong and be back on the track (or lava path, or Appean Way, or wherever) fairly soon.

The graphics are a stroke of near-gerous. Instead of using hores screens with text win dows (with all the attendant limitations), the Andromeda team have used multicoloured and multi-layered sprites to create smaller but brilliantly stored, displayed and changed

Many incorporate animated The overall emovment heightened by full use of the and I wouldn't be at all sur. 64's sound potential. The marvellously student music in the Roman segment, for example, reminded me of those 1950s

continued on page 100

other while saving most of his energy for Gins Lollobrigids. So Eurekal is that rare thing - a hugaly-hyped game that actually does live up to the prommes of its advertising

A spy from beyond

Those of us old enough to have been young enough (if you know what I mean) to be anarclue, even before the era of Monty Python, will greet with nostalgic delight the news that Antonia Prohias's duelling, wedge-nosed secret agents from the pages of Mad are to feature in Spy ws Spy from Beyond Software.

I had my wasts slapped by Beyond's Cirve Bailey for daring to suggest that it might be categorised as an atcade adventure; it is an 'ammated cartoon strategy game' ... I think he said. And as with that other wall-known game of strategy. two can play, it should keep the iovstick manufacturers happy

What do you do for an encore with one mega hit under your belt? You don't necessarily but another year of gold the second time around - as Melbourne House discovered after The Hobbit. Succeasors to that title have been adequate but hardly outstanding. Then again, you don't hack out that quality of program over a long weekend, and indeed g is almost wondrous that Philip Mitchell has polished off Sherlock as quickly as he has

Sherlock homes in

Sherlock is almost a pure text adventure, though there are some graphics along the way. The real appeal of the game is the intelligence of the parser routines, which build on the facility for third-person communication and inter-action first seen in The Hobbit to an extent that will impress even Zorkists Incidentally, it used to be only Infocom who were any good at producing supporting documentation; indeed, but the 18-page booklet that comes with Sherlock improves even on that standard.

By the way, don't make the mustaka (as a friend did) of putting to one side the timetables and other scraps which come with the game, thinking them to

weights. If you're on the right bnes (lund hard) you should find ause for them all Players of Aztec Tomb from

Alligata can testify to the fact that this early effort by Tony Crowther gave lattle hant of his latent talents, which were to eventually surface in Loco and Suicide Express. Pretty brave of Alligata, then, to use the title Aztec Tomb Revisited (£7.98 £11.95 disk) for their latest adventure. Even more courageous, perhaps, of Mr Micro to promuse a new graphic advenhare every fortnight on Compunet, coming soon. The games will be linked and users will be able to download

them onto dask from the Soft-

ware Park names Meanwhile



Eureka - traval through time to win £25,000

like the gles of adding a multiplayer, misractive game as a Compunet rival to Mud - gramnally run on Essex University's DEC 10 computer and recently acquired by Century Communications for relaunch later

Two adventures of very different calibre are included in Select One - the compdation cassette of 12 games for the 64 selling at £12 49, Sadly, Ring of Power, originally published by Quicksilva at £9.95, has about as much appeal as a day old pot noodle. It is supposed to be a graphic adventure, but all you see are crudse sprite ren. resentations of various objects or, if you type PICTURE (though the original inlay never told you this), you can call up a new of three walls marked with N. S. E or W to indicate legitimate exits | legitimately exited after only a few murutes

Denis the micro-menace

Denis Through The Looking Glass is something else again, a Quili-generated text adven ture in which the PM's hubby must thwart everyone and everything in the way of satisfy.

be only amazing make- ing his legendary (?) propen guerade for the computer hersity for a quick snorter It is in offensively entertaining and almost compensates for the inadequacies of 2s bedfellow in this collection. Or you can buy

> Software at \$5.50 The brace of new graphic adventures from Audiogenic at £5 85 are - if you'll paydon the extended metaphor - a bit of a curate's egg in Time Travel ler, you're off to wrest the magic hourglass from the evil Graf won unpronounceable with the assistance of 1990s technology (which is like 1980s technology - only the guarantee has run out). In The Magic Stone, the scenario has you

aearching for the all-moths alchemist and the means of turn-

Commodora are also said to ling lead into gold: machine coders attempting to convert Spectrum games for the 64 will Both adventures accept the

usual verb/noun paus plus single-letter inputs for fraquently used commands. The graphics are not at all had there are some race puzzles, and the HELP option is, if any thung, a little too obliging Still the fact that I didn't speed along suggests that the full game will in each case provide even fairly expenenced adventures with a few hours of contemplation.

A few more than they might expect, in fact. This is because. apparently, neither Time Travaller nor The Mague Stone has a SAVE facility. Together with the fact that both titles take around ten minutes to load, this means that you'll have plenty of time to console yourself with the thought that there are Koala Pad outlits for the first three players of each adventure to declare the most expeditious solution. Some trony thera.

Spirit of Commodore

Prizes of even more sparkle are your mountive in Spirit of The Stones, a kind of Mas-

ate which marks Commodore's first substantial original title in the genre. For your £14.95 you get a large-format book

packed with full-colour illustlations, in which author John Worsley tells the tale of a for tune in diamonds hidden on the Isle of Warht By reaching the bons, and by exploring the 2) locations-cum-games which faature in the accompanying software, you should be on clauring one or more of the 40 diamond taliamen offered as prizes - and possibly the even more valuable Great Works

Rotter still. Commodore have established a royalty fund which will grow by 50p with every copy of the game purchased. So successful claimants not only get to keep the diamonds but will have at least one share out of the 90 and able in the hind's total when in closes. That will be when all 41 talismen have been claimed when the hand has reached £1 milion, or in December 1993 whichever happens first

All clever stuff - and very fair, too; especially since you can claim by post and don't actually have to did up the treasnres. But for a concept that ascation - and certainly has an up-market price tag - Soint falls a little flat when it comes to the games element Co-author Ian Gray seems more at home with graphic adventures such than with the tedious and samey arcaders he's devised here. They're a little too difficult for the younger player and conventional adventurer to bothermastering

Yet I've played (worse still, bought) poorer efforts, and its two-score chances of winning a rock plus a share of perhaps £1 million might nest cave Smert a place in the charts that g wouldn't otherwise deserve

And finally, since characters from the past heve figured pretty strongly in this month's column, can you deduce what (or who) Sherlock Holmes and the Goors had in common? First correct answer out of the hat - oo a postcard, please, by Friday, 1st February - wins e mint fastload cassette of Storm Warrior - Front Runner's feature-packed 12-screen arcade adventure and a clausic of its type

Canyou afford to write for anyone else?



Leaders in Computer Games require programs and programmers

 Original game programs for the Spectrum or Commodore 64 are urgently required:
 Arcade, Strategy or Adventure. We pay top royalbes or tailor a contract to suit your needs — WorldWide sales ensure the best possible deal.

 Programmers to work in 280 or 6502 assembly language for contract work or translation coding – best rewards.



Write or phone in confidence to Software Development, Ocean House, 5 Central Street, Manchester M2 5NS 061-832-6633

PCN REVIEW NOV 83

"The facilities for setting selection criteria ... are impressive"

"It represents very good value for money"

"... particularly easy to use" NOW EVEN



Database Management System

"SIMPLY FILE" DBMS
THE PRACTICAL FILE SYSTEM
PET 2000-8000 £65 + VAT
CBM 64 (DISK) £60 + VAT
Sendtordetails of other
DODGERON and fire powerletter.

Simple Software Ltd 15 Havelock Rd Brighton Sussex BN1 6GL Tel (0273) 504879



** MOONRAKER **

* NEW ARCADE GAME FOR *

THE COMMODORE 64, PLUS JOYSTICK

Test your skills - are you the BEST or one of the rest?

Enter codename into the Moonraker Patrol Log and FLY your sub-orbital craft around the planetoid Geevor into a 3D fly-into space scenario over an extensive lionar-type landscape.

DEFY the 'Fireball' DEFEAT the Scavengers, and GAIN PROMOTION through the ranks of the ELITE MOONRAKER Patrol.

** MOONRAKER - FANTASTIC VALUE at £6 95 **

also for the Commodore 64

* SPRE-FELL *

© £5.95 *

Ge £5.95 *

Have fun making sprites in MONO or Writing your own programs? RENUMBER, MULTICOLUR LOAD, APPEND & DELETE —

MULTICOLOUR LOAD,
SAVE, REVERSE,
INVERT, NUDGE – it's
so easy – alds
animalion!
GARCET 54

Budget Price –
GARCET 54

animation! GADGFT 54

*** FREE C10 cassette for your own programs ***
with all mail orders for SPRI-TECH or GADGET 64

You like our Software & Budget Prices — Tell your triends!

Order Now, send your Name, Address & Order Title,
enclose PiO or Cheque for full amount and post to

[81] Gilmour Ltd, Deut Clinss.

4 Copse Close, Liss, Hampshire GU33 7EW, England

NOW A DEALS FOR READERS PRODUCT

MusiCalc

What the papers said
Musicalc is a program which will stretch your
SID chip to it's limits. It is a synthesiser which
makes my monophorac synthesiser look like a
harrel-oran.

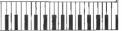
...would even have the BBC radiophonic boys drooling.

f This is an excellent product and a good synthesiser.

YOUR COMMODORE Dec 84.

f The attractions of the software go way beyond sound quality. It is for a start super friendly – and it has the versatility to make it a genuinely useful compositional tool for the experienced and adventurous musicians.

WHAT KEYBOARD Nov 84.



DON'T JUST PLAY GAMES!

EDUCATIONAL SOFTWARE

VIC-20 UNEXPANDED

Physics Biology Maths Computer St

Maths
Computer Studies
Science
Maths
Mathematics
Arithmetic
Reasoning
Knowledge

O level/CSE Revision Aid O Level-CSE Revision Aid CSE Revision O Level/CSE Revision Aid Revision 12/14 Years Revision 12/14 Years

Revision 8 11 Years Revision 7/10 Years 11+ Revision Quiz 9.99 Years

Exceptional value at just £4,95 each post free

Immediate delivery by first class post

NO EXPANSION RAM NEEDED

Cheques/PO to:
Micro-De-Bug Consultancy
Dept CU, 60 Sir John's Road
Selly Park, Birmingham, B29 TER
Tel: 021 472 7640
DEALER ENQUIRIES WELCOME

NOW A DEALS FOR READERS PRODUCT

More from the press

6 There is no doubt that these Musicalc programs provide the most comprehensive exploitation of the 64's music generating capabilities.

COMMODORE USER Nov 84.

Musicalc is an incredibly powerful system ... Even the briefest listen will win you over.

COMMODORE HORIZONS Dec 84.

If music is your interest - I recommend you get a demonstration of MusiCalc.

READING EVENING POST.

To do just that visit: Chromasono, Pilot Sobware - Bathbors Place, Tomorrow's World Today - Ordord Streat, Microland - Wasterbowlle, Camer - Boghton, Partsburgod, Computer, Tomorrow's World - Hall The London Rock Shop Sole Shop - Challest Or ask your local Cammodore dealer or

Superbase 64

CTHS FREE MECONS, DETERMINE BEST, AMERICA CONSISTAN, RESILL OR DISTRIBUTED TO SEPTIMENT BY THE POST ASSUMPTION OF THE POST ASSUMPTION OF

IN PROPERTY AND THE PROPERTY OF THE PROPERTY O

Master 64 Mag controlled Magnetine 1 to more 7 miles of the Magnetine 1 to more 1 miles of the Magnetine 1 miles of the Magnetine 1 miles controlled Magnetine 1

ALL FOR DILY EGS. 951

VIZAWRITE 64 THE COST WHO PROTECTS WITH ONE OF SEC. AND PROTECTS W

MICH SHOULD IN HE HE AND AND
MICHT ON GOING TO PRESS.
MICH HI POST OF HANCE, USING
MICH HIS MICH DESERVED IN ANY
MICH HIS MICH DES

COMMODORE 64 OWNERS

MIDLAND COMPUTER LIBRARY

The First & Largest Commodore Library in the World (often copied but never equalled)

- 1 All the latest titles very two weeks
- 2 Hire your first two games absolutely free up to £2 in value
- 3 Life membership £6
- 4 Hire charge from only £1 inc p&p for full 7 days
- 5 No limit to the amount of games you can hire 6 Ali games originals with full documentation
- 7 Games, Business and Educational software
- 8 Return of post service guaranteed
- Dowest new hard and software prices in the UK
 Join now on 14 day money back guarantee
- 11 Over 1,000 games in stock inc. many US imports

MIDLAND COMPUTER LIBRARY 31 Evenlode Close, Lodge Park Redditch B98 7NA

Telephone 0527 23584





ACCOUNTING FOR YOUR SINS

A layman's encounter with Commodore 64 accounts software

by Karl Dallas

Most owners of small businesses or the self-employed shudder at the very thought of accounts; producing them is probably the most leathed chore of the business year. It's now possible for businessmen to do their accounts properly and relatively cheaply with a Commodore 64 and appropriate software. And here hes the problem if accounting jargon leaves you cold (and it does for most of us), learning to use that accounting software may be yet another problem to contend with. Karl Dallas finds out how Geminis' Cashbook plus VHT, and Dialog's Transact and Invostat packages shape up to solving his financial problems.

As a self-employed financial idiot, who got into computers mainly because I can't add two and two without getting the square root of minus one, the hardest chore of my year is the preparation of my

accounts. And since HM Government devised that kind of torture known as Value Added Tax, it's become a quarterly problem, too.

In fact, when I bought my first &F Pet back in the Securities I must confer that

back in the Seventies, I must confess that it was financial number crunching I had in mind rather than word processing, spreadshoots and databases which is what keeps it busiest now I've looked at aoms of the really pose.

erful basness packages, and they inpress ne mightly Bu, fraulty Bu, fraulty the manuals assume so much pnor knowledged to accountancy agron (did you know Agod Debtors are it really old agod penases. set?) and the procedures of surgle entry journal transactions, whereby cash received may be entered as credit to the sales account, but a debt to the cash account, making the whole thing harder to understand than reverse Polish notation, that they frighten me right away.

Until now, therefore, I've been doing my accounts on a spreadaheet. Every item is entered, its VAT calculated, and at the end of the month I've got a complete summary of what's been going on from which my accountant can prepare something the Intain Revenue and HM Customs and Excase will find accept.

With the increased use of low-priced but powerful machines like the 64, however, it's become possible for businessmen to get into doing their own accounts properly. And the software doesn't cost hundreds of pounds, any more, wither.

So I approached the accounts peckages from Gemini and Dialog in ignorance and with trepdation, and though I ended up preferring one to the other, I won't be surprised if the professionals say I'm wrong. My fellow financial idiots may agree with me, however.

Installation

Both programs are available on disk or tape, and of course the disk version is quicker to LOAD. Germa charge £5 extra for the disk version of their Cashbook and VAT package, costing £54.95. I had them on disk, but Germun's manual says their program takes about eight immates to LOAD from tape.

The Gemin program doesn't include an unonce generator, but it does have a special VAT futihy, VAT file, simed specifically stpeople who are on the special retailers' scheme. This would become very valuable if, as seems possible, the Government starts to levy different rates of VAT for different product.

On the other hand, Dialog's bookkeeping system is called Transact, it costs £30 on disk, and you can pey £30 extra for the accompanying hyostat in-





voice and statement generator. I have my own invoice forms stored on disk as word processed pages, so I could have without the invoice generator, especially since it doesn't integrate with Transact.

without the invoice generator, especially since it doesn't integrate with Transact.

I have this dream of one day typing in one set of information when I pay out for something or (more rarely) receive a payment, and have all the rest of the work done for me, but that day basrift work done for me, but that day basrift.

come yet.

Obviously, if you don't need invostat, then just buying Dialog's Transact package could save you a lot of money

Comparisons

When you start running the Gennus program, you're prosected with a ready-formulated system into which you can start injusting data rught away, with a very comprehensaries to fill 98 normal account obtained in the fill of the committee of the fill of the fill of the fill of the count. These names and coder can be changed, and there are just under 100 blank codes. If no tales are notes to these codes, then they are skopped while the system is musuing.

There is a set of code-efor limited companies, sind an alternative set for sole traders or partnerships. Obviously, both would not be required at the same time German gives a useful list of the complete set of codes in the manual.

In comparison, Dialog offer only 90 codes (probably adequate for most small businesses), and the first ten are preset as 'control accounts' to monster the bank, cash, debtors, creditors, output and mpnt VAT, VAT clearance etc.

The rest you have to sort out for yourzelf. I must confess I lound the German last useful in helping me work out what I might need, but a few minutes' careful thought would probably help you work it out on worr own.

Once you get into recording transactions, the distinctions between the two programs becomes obvious.

The Gemun program is much more highly structured, with certain account codes restricted to receipts, others to payments, and some to both. On the other hand, I was arranged to find it didn't calculate the VAT on each individual transaction.

I asked the Germii people about this, and David Partiens, who helphed to devise it, told me that they had been advacted to do it this way by the Contoms, though they mught have preferred to have included automater calculation. The problem, of course, arises if you have a mixture of taxed and sero-rated sums, or of there as more than one rate. Certainly, one of the resonan why I

wear a wrist watch calculator is so that I can always work out how to derive the tax from the gross sum (by dividing by 1666667, since you sick), when I am sending out invoices, because my WP

program doesn't have a calculator, either. It's a little irriteting, but I can live with it. Dialog, however, does give you the option of automatic VAT calculation. After transactions have been com-

pleted, and verified, they are SAVEd to disk or tape as data files. Both programs, have specimen files not disk but of course in practice you would SAVE new files to a newly-formatted disk as soon as you started working the system.

you scatted working the system. Genum point out, rather alarmingly, that if you should overwrite the date on the program disk, if il be impossible to run the program. I tried backing it up (I always try backing up my program disks, even thought it rarely works on the 64), but it didn't work. Oh for the days of donoiled

One of the things I preferred about the Dialog program was that it came with a small demonstration data file, which enables the first time user to check out how it works Gentin claimed that their data file could also be used for demo purposes, but there was no documentation about how this could be done.

Printing

Daalog provide no mformation on printer configurations, and there is no faculty for setting up any printer. On the othar hand, printing is well documented by Gernius, who specify an 80-column printer and have a 'configure' option allowing the page length, discontinuous paging, ASCII code for the 5 sign, and device.

number to be altered.

The name of the company is defined while configuring the printer, surprisingly, though of course it could be incorporated in the data file name, ag "Any-companyates".

Several options require the printer to be attached, and in lact Germin assume a hard copy print out before shirt-down (a good practice). Dailog was very unlorgiving if you chose a print option by matake without having the printer connected and will END with a 'devoce not present' error.

Typing CONT gives a 'Can't continue' error, and if you GOTO 0 (the ML routine opening call), the program will run again, but you've lost all the data in memory.

In fact, Gernine advise keeping the printer connected and numed on before you even RUN the program. If an interface, briespod for example, is connected, then that should be configured before the program is RUN.

MINISTER MAN CONTROL SULLISTERS

STATES CONTROL SULLISTERS

STATES CONTROL SULLISTERS

STATES CONTROL SULLISTERS

CONTROL SUPERIOR SULLISTERS

CONTROL SULLISTERS

CONTROL SUPERIOR SULLISTERS

CONTROL SUPERIOR SULLISTERS

CONTROL SULLIST

Gemini's nominal account summary



Monthly expense summary on Gamini

Documentation

Neither program is particularly well documented. Both have A5 booklets, the Germin of 24 pages, the Dialog of 20.

The manual for Gerund's VAT file says specifically that "this package is not intended to be a guide to the workings of Value Added Tax" and Td say that a careful browne through any standard book-keeping tutor would be necessary to enable you to get the most out of either system. Finally, both manuals have ex-

FOR Gemini, powerful, limited printer configuration possible

AGAINST Gemini, no automatic calculation of VAT on each transaction

FOR Dialog, easy for the beginner to get started AGAINST Dialog loss powerful, no printer documentation



IT EP

JT E

FRV

HARE

TO CHARRE

tensive appendices of printed examples, which are very helpful

Conclusions

In plumping for the Dialog package, you may realise that I have some fears that, in the long run, and after I've studied the requisite books from my local library, I might wish Ed chosen the Gemin

It's unlikely that you'd be able to use the same data file format, if you did decade to ungrade But I'm still going to stick to my instinct

Even if I'm right in suspecting that more careful study of the Gemm package would be well worth while. hie's too short. I'm not an accountant, after all, and while I'm still hoping for that elusive pot of gold at the end of the next rambow. I'm fairly confident that I'm hardly hirely to see my business expanding so much and so fast that Transact would act as a brake on further development.

But if you're starting up, have big expansion plans, and have the time to get things right first time, then take a look at Gemini. It may post twice the money, but I suspect that it's worthit, in the long run.



Accounts summary on Transact

MAKE THE MOST OF YOUR COMPUTER.

INTERF4CE



- Mastering Machine Code on your Commodore 84 . £7 95
- ☐ Mastering the Commodore 84 £7 98 ☐ Challenging Gamas for the Commodore 64
- £3.98 ☐ Putting your Commodore 64 to Work (15 programs.
- including a complete word processor) 24 00 Putting your VIC 20 to Work
- £4 95 50 Outstanding Programs for the VIC 20
- 28.93 Delving Desperanto your VIC 20
- \$4.98 ☐ Dynamic Games for your VIC 20
- £4 95 □ Creating Adventure Programs on your Computer \$4.95
- ☐ The Art of Structured Programming £5 95
- The Easy Way to Program your New Computer £3 95 Getting Acquainted with your VIC 20
 - £6 93 ☐ How to Program the Commodore 64 £S 98

These books are available from most book and computer

stores. In case of difficulty, order directly from us Interfecs Publications, Dept. QGU, 9-11 Kensington High Street, London WS 5NP.

Please send me the indicated books. I enclose £

INTERFACE

We're the Experts.

The natural development for Commodore 64 users

Unlock the full potential of your disk-based Commodore 64, use Superbase 64 - the complete records-handling system that buts business style power and practicality at your tingertips

Superbase 64 solves a host of filing problems with its easy record formatting, powerful indexing and sorting, extensive outputting options, and its Superbasic' programming capability.

- The complete information control system for the Commodore 64 includes a simple to follow manual

Complete your Commodore 64 - Complete the coupon anon on Superbase 64 is available from Cor

--------Please send me more information on Superbase 64 Address_ Age_ Occupation_ Precision Software Ltd 6 Patk Terrace Worcester Park, Surrey KT4 7.JZ Tel 01-330 7166 Telex 8955021 Processors PRECISIS of man



Write away

Adventure nut

I am writing to you from Sydney Australia I am a regular reader of your excellent magazine and I have found it very helpful in assisting me to learn more about my Commodore 64 Even though the adver-Esements aron't any good over here. I still lowe to read the articles

I am a crated adventure name adduct and currently have nongames that I am hopelessly stuck on Perhans you or some of your readers could give me some help The first one is "Heroes of Karri How in heaven's name does one kill the parete, and what will kill or dusable the serperg? Secondly, is The Secret of Bareton Manor' I'm m the stone cell and can no no further Relni

M Stuckey, 601 Maramon Street Marayona 2148 NSW Australia.

Can any Karn or Secret colvers ppt this Astipodean Adventures on the right track?

TX Printerface tip

I am sure that some Vic users have the Softex Computers interface which connects the Vic-20 to the ZX printer and would welcome some information regarding it. Whilst writing a machine-code screen dump for the set-up, I dus powered that the Printerface soft

ware uses locations 251 and 254 while printing. Thus, I had to find some other zero page locations for my program to use I have found that locations 97 102 and 105-110 can be used temperarily Also ZX proses users will have

noticed that apmetimes, the device will prost sliombly. The has a reststrople cure Just feed some paper through before doing any pontno and after to aring any paper off M I Davice, The Waverley, 28

Rhosmaen Street, Llandeih, Dyfed, Wales.

Teach-vourseif Victuals

First off may I point out that I'm rather new to the world of computers and I'm still finding my way around the programs However I most point out that your magazine is just what's wanted for someone

starting up with computers If s not full of very advanced programs, not over filled with adverbsements (as some magazanes are), it gives us a very good magazine that covers a wide slice of computing.

I Have now found the one magazine I want out of the hundreds that find their way on to the

Heav is a must if you wish to get to

crans with wone 64 or Vic. 20 The only thing I would ask for is some small programs that are of an educational kind to be added to the labourse of all those fathers who uttor the excuse, "It's for my children" Maths spelling, Highway-code Green Cross code - anything as iong as n's of use for the children

Il you have any readers out there that may be able to help I would like to hear from them. Keep up the good work

L A Hutckings, PO Box 48. Derby DES SOP As you probably know, there's

as increasing among of good and cheap educational software now available for the Commodore 64 (we're reviewing a kage batch in this issue). We don't publish educational Victoris for the simple reason that we rurely vaccive any. It's up to you to write it and send it ..

Help for the handicapped

enjoyed reading my first copy of Commodore User Can I suggest that you allow one page for your magazine to tackle the problems of the mentally and physically handstanned Commodors near? These is a drastic need for up-to-date information in the highly specialised field, both from teachers of the metally handscapped and parents. of which I am one

My son is a 5½ years old Downs Syndrome child. He copes well with the Commodore keyboard. but finds that most carmes on the market are too sophisticated for him to master He requires programs which build up very slowly as lus thought patterns and reac-

I urgently require a list of suppliers of suitable software. Can you help? Looking forward to hear-

H Foreyth, 16 Balgibbon Drive. Callander, Perthabire FK17

Worthwhile reggestions of this kind are always welcome Trouble is, we don't really know how many mentally or physically handicapped users of Commodore computers there are out there. We need you to write in and tell us.

SEU

Meanwhile, can any software suppliers offer any suggestions to ffelen Forsyth?

A SUPERB DESIGN TOOL

CADPACK-64 is a superb tool for nuter-eided designs and draw Graphics Diewings are done directly onto the high resolution screen using a light pen

CADPACK-64 can create and edit graphics pictures, drawings, layouts, and rereference - muckly persentally and artistically The output is suitable for reproduction as hardcopy printout or photographs

CADPACK-64 is e snap to use! The mein menu lets vou choose from a full list of options simply by selecting one with the light nen Your interaction with the knyboard is met-



ADAMSOFT HK Distributer

m - a2 22 - 12 Ē- 8² Pythagonac CIRCH ETABL ---

Shar of Adampota 1ai 9786-124384

CADPACK-64 gives you two tull high resolution screeds. You can draw with any combination of LINEs, BOXes, CIRCLEs and FLUPSEs: Fild using patterns or solid colours, free hand DRAW: COPY sections of the screen to other sections of the screen. You neo choose point alecement down to the pixel level by using the floating vermer. The ZOOM

feature lets you do detailed design within a CADPACK-64 runs on a Commodore 64 with 1541 disk drive and requires a high quality light pen. A printer is optional.

small section of the screen

CADPACK-64 makes design work with a Commodore 64 so very easy. We chellenge you to try one of the most useful design tools available at any price for a home comnuthan

CADPACK-64 w/comprehensive manual on DISK £35.00 CADPAK-54 is now available complete JECT EDITOR which lets you define the shape of OBJECTs such as furniture, electronic circustry or machinery. These definitions can be as intricate as the resolution of the screen permits. You can name these OBJECTs, build a lihrany of them on desk, and then recall and display them on the screen at varying SCALEings or ROTATIONs. When your designs are complete, you can SAVE/RECALL finished screens to/from the disk, Finally you can reproduce the results to one of popular dot metrix printers

Commodore 1525E, MPS-801, Epson MX, RX

or FX series Okirista C. Itoh Prownter, Star

CAPPACK-64 has a powerful OR



Send see tor full catalogue Dealer enquries welcome - No surcharge on overseas orders Ti enscash payments to a/c no: 687944007

Abacus iii 1885 Sortware

POWERFUL UTILIT THE BEST RANGE OF UTILITIES FOR THE 64. WRITTEN BY PROFESSIONALS—SOLD BY PROFESSIONALS

Two important NEW programs

ONLY 511,95

m fre rich Fasianpy in whola disa Error copy

I lie appler must pelaativa :

Ments share many and last loading in your own discs Abo or frame or THE sign to disc united White hardware and software To armazing new cassede port at yor. In mike back up copes - 1005 (uc

driss. The special source one dress
brand new machine copy onto one dress
the other Fast and rell ONLY 612.99

ONLY 59 95 POCKET Fed up waiting for programs)

sweep by about \$1 irons while ision to relead Indepen dantly. ONLY 67.95 THE CAPE TO AND WINDOW knowledge distan aute load and run once ONLY 59.95

mand Very easy touse Canbe

01500

RICHOLOTH The superb new speech synthesis program for the 64 Uses speak as a basic com-

nonetic English in spell as they unlimited Great fun ONI Y 67 85

Rename Stratcher Olst to Fapa "Y TAPER A powerful unity Works

ONLY £5-95

3M SCOTCH £16.00

its just four

ONLY 829 95

GUARANTEE S.S.D.D. GUARANTEE

very reasonably priced. ONLY 514 22

MICRO CENTRE

MICRO CENTRE 1756 PERSHORE ROAD COTTERIDGE, BIRMINGH Tel: 021-458 4564



E STREET, EVESH

AND FOR THE BEALLY

LOVE

ADULT FORFEITS AND REWARDS GAME BYTES! NAUGHTEST THING YOUR TAPE ES 95 (OVER 18 s ONLY)

> CHEQUE OR POSTAL ORDER TO-HARBOUR SOFTWARE

134 EAST WEARE ROAD, PORTLAND, DORSET

DEALER ENOUGHES INVITED

THIS IS A PLUG FOR THE CENTRONICS PRINTER INTERFACE PLUS CABLE

VIC20 & CBM 64 VERSIONS SIMPLE TO INSTALL AND LISE PRINT OR LIST FROM BASIC OR MACHINE CODE CARTRIDGE-BASED . SAVES RAM

JUST £4299 NO MAIL PO/CHECUES TO: G4G MICRO SERVICES 63 PORTLAND BOAD

BIRMINGHAM R16 9HS

BROTHER MIDOS ONLY 5199

HIGH QUALITY PRINTER AT LOW

PRICE 9 x 9 dot-matrix, 80 col. 50

opd, 96 chars and over 100 other

chars Enlarged, condensed, gabe

super & sub score and more. Fortion fixed, tractor option EPSON RXSOFT 5298

Serkosha GP700A £369

Cannon PW1686A

-F-5 Vic 20 & 64

COMPLITERS

SAY YES FOR COMMODORF HARDWARE, SOFTWARE & PERIPHERALS

VARYCHIDE ELECTRONICS SERVICES MAITED

17, Fountain Street, Mosley, West Yorkshire Tel 0532-522181

PRINTER BARGAINS FOR VIC-29 AND COMMA

SEIKOSHA GP190VC

ONLY 5149 MADE FOR THE COMMODORE EXCLUSIVELY 6 x 7 dot-matrix, 80 col. 30 cps. 154 chars inc Commodose graphics Graphic, Double width & Standard Tractor feed

SPECIAL OFFER UNTIL 25th IAN Shiriwa CPA80 £258 Daisy Step 2000

Smith Corona TP-1 _____ 5229

Mannesmann Tally MTS0 __ 5255 Payments to. SHEST COMPLETE STATE AS Brys Cottago, Pexiel, Carmarthen, Dyfeil Tel. 9267 231246 for further details

Designed and written by us for Commodore the COMMODORE MUSIC MAKER A must for your Commodore 64 this Christmas

Turns your Commodore 64 into a Musical keyboard Complete with 'prancitype keyboard which fits onto the computer

* Songbook and music tutor book * Play popular tunes even though you've never played before

* Imitate sounds of dozens of instruments * Compose your own tunes and play with added accompaniment and rhythms * Disk or cassette available

All this for only £29.95. Our opining offer includes free extra sangback. We see the 64 specialists. Send SAE for software & peopherals list. Frae P&P on items over £10 Access Battlaycard M K MUSIC AND COMP JTERS

17 BRIDGE STREET - LEIGHTON BUZZ, RD - BEDFORDSHIRE TEL: 0525 37662;

Commodore 64 + Vic-20 Club

Trade supplied with full games and business software for all Commodore machines

All original software - business and games. New releases for CBM64 every two weeks Send your name and address to go onto our mailing list

M. J. Seaward

St Olafs Road, Hill Head, Stratton, nr Bude, Cormwall

Telephone: Bude 4179

COMMODORE 64 DATABASE STEPHE

Outstanding value. cassette £7.45, disk £10.25 fast delivery by first class mail. Send cheque/postal order to: A+C Software, Dept 3, 75 Oakthorpe Gardens, Tividale, West Midlands B69 2LF

When it saves you Time, it saves you Money... which adds up to a great add-on!

Simply fit the CP NUMERIC KEYPAD to your CBM64 or Vic-20 and forget it.

Always ready to use NO SOFTWARE REQUIRED

Compatible with all commercial software Leave all ports free.

Essential for the serious user because TIME IS MONEY, AND THAT'S WHAT COUNTS!

Please send cheques/PO. Commercial Products

11 Hylands Close Furnace Green

Crawley, Sussex RH10 6RX

includes

RETURN key ONLY

£29.95 inc VAT & P&P

> ₹30 00 28T 00

ASSEMBLER 64. Profe-second development tool. Full assembler disassembler allowing LABELS VARIABLES PSEUDOLOUPS and CONFROL CON

DATABASE 64. Menu dru en datubase. Max 30000 records data la teste and da fields record a REATE database. ADD INSER! DELETE AMEND records. SEARCH for records on any fit ld including mild and matching?" £111.90 024 95 Pre-1/ph

All prices disk

SAE full catalogue repver 200 programs contuding databases, word processors s education arranching utilities back & mini-BYNAMITE SOFTWARE
BCM 4713 LONDON WCIN 33X



It's a fair cop?

The Sentinel burglar alarm reviewed

Last month I briefly touched on the subject of home security when I covered possible uses for the input board. Morco-Security, who hall from Hampshire, have gone a stage thather and actually produced a system that lots you turn your Commodore 64 or Vic-20 into a burglar alarm, complete with window sensore, pressure mats, alarm bells and cables It can also act as a control system, turning devices on and off at preset times.

Security system components

The complete Sentinel security system comunists of the Sentinel interface unit, the control of the Sentinel interface unit, the control of the Sentinel interface unit, the control sales where the sent of the se

As with any DIY security system, the first thing to do is to install all the various components of the system, wiring up the windows and doors with the magnetic contact switches, setting the pressure mat in front of valuable items or at a doorway and mounting the bell, buzzer and panic switch in the appropriate

The cables are then taken back to the two junctions howes which terminate all the circuits and allows neat cabling between the junction battes and the Sentirel und itself. The Sectimel connects the function of the sentirel connects the Unser-point of the compiners using a rathon cable, and also requires to be plugged into the masses for as power supply. The instructions are strengthforward and cancily the same after any DET system. In a the use of the suppless downwards in the other cases and the suppless downwards and the suppless and the suppless the supples

The security program

There are two modes, security and control. Although you can run the control mode on its own, the security mode incorporates both, so you can use Sertine! 44 an alarm system and as a control system Unfortunately the is not made very clear in the instructions.

There are facilities to alter the param eters of the program, set the date and time and test the alarms, the parameters are normally set to the values you require and then the program stores them on tape or disk. When you next run the system these values are loaded in for use as you don't have to alter them each turn. This is very handly, but the one exception to all this is the date. This has to be entered each time you run either of the record each time you run either of the sweched the machine off and with to channe from security to control, or russ

reset one of the parameters, you have to re-mput the time and date again. I am sure it would not have been difficult to have stored the date and use the computer clock to keep track of the time even. between options. Although you don't change options that often to keep typing the date time spoul the otherwise the function keeps are used to select the contains.

Sounding the glarm

In the security mode the interface unit moralors two input channels; these can be either normally closed (nc) circuits

continued on page 110

Project

continued from page 109

such as the magnetic switches, or normally open (no) circuits such as pressure mats or IR (infra-red) detectors. LEDs on the front panel of the interface show the state of each channel

When the system is activated as events by dis begun. This shows the time of activation, and records all events on of activation, and records all events on discovering the control of the

The delay is to allow you to de-activate the system before the alarms go off when you enter the house again. There is also a night-time mode which is designed for use when you are in the house and wish to protect yourself from forced entry In this case there is no delay; as soon as a sensor is inggered the alarms go off. Likewise the parise switch, this will activate the alarms prespective of the state of the program, provided the Sentuel interface is powared up One good point is that the internal burrar sounds if any protected windows or doors are open when you attempt to acta vate the system initially.

The control program

I found thus shiphly disappointing. There are four coupts channels which can be swatched on or off at present times. The sentings are forced on tape or disk in the same way as the sentings for the security system. You specify each of the confort times for each channel, activate the system and it will then swinch the channels are required (an LED on the front penel lightful price of the channels of the channels

However, you can only specify one on off period por 24 hours on each channel; 2 on/offs per 24 hours would be much more useful and give greater flexibility to the system.

Also I cannot handle mame control without additional components such as power relays or opto-solated trace, Micro-Security have said they intend to produce a mains interface and this will certainly make the system more useful, although it will also put up the price. Although there is no way of combining

the triggering of the security sensors and the switching on of the controlled outputs with the software as it is written, the two parts work simultaneously. Thus you can have lights being switched on in the house while you are away and have the security system activated. This does not preclude you writing your own soft.



ware, of course, and you could devise your own control and input system; opening the front door could then turn on the kettle and the light rather than an ear-shattering alarm hell!

Drawbacks of the system

With any system which turns your computer into a dedicated controller of some sort you have to ask yourself a few relevant questions, how useful is a close it do the job as well as a stand-alone system and is it worth the extra money?

Sentinet is let down in a number of areas firstly the entire system is mame powered. This can be a mejor disadvantage for both a security system and a control system. One glitch in the power supply large enough to trip the computer and the whole thing switches off. The 30 second delay is also time enough for the burglar to swatch off the power at the mains, he doesn't have to search for the control system! Secondly, after being tripped, the security system de-activates itself. Thus if you are away for two weeks and somebody attempts a break in two days after you leave, then even if it deters that burglar the house is totally unprotected from then on. Why doesn't the system reset itself, assuming the neighbours/police have re-secured the point of entry, and continue to monitor? (You could in fact modify the software to do thus yourself)

Thirdly, the control system does nothing that couldn't be done equally well by a time-switch or two, with the advantage that the latter will not be affected by momentary interruptons in the power supply. Finally, hore's an obvoous point while the computer is monotoring your burglar alarm system or controlling things, you can tuse after anything else.

Advantages of Sentinel

Having looked at the reasons why Sentinel is not ideal, what advantages does it offer? Well, as a burglar alarm system you would be using it at times when you would be using it at times when you were either out of the house or asleep, thus putting your computer to use at times when it would otherwise be lying idle. The Sentinel unit gives you stotal of idle. The Sentinel unit gives you stotal of two input channels and six output channels; by writing your own software you could use it in a number of control applicanots in a more flexible manner than the supplied software permits.

It is possible to purchase the Sentinel mierface without all the security hardware at a cost of 569.00 (excit VAT) thus saving 130 on items you may not want anyway. (The manuals do not show how to operate the Sentinel directly, but listing the supplied software will provide all the miormation you need.)

Finally, using something like the Senbrane to a lumied degree if that's what you want to experiment with. It cannot therefore be dismissed as unsuitable for any particular purpose since different people will buy affordifferent reasons.

Conclusions

Within the limitations of any system that attaches to a home computer, the Sentined does what it says it will do, it provides both a security system and e control function. For someone who wants to experiment with computer control and do something useful with it at the same time, this is a well-made, easy to use system.

However, if you want a relable burglar alarm to protect yourself and your property in a high risk area then you would be much better edvised to invest in a stand-alone, battery becked-up syntem which does nothing else except dent on a relable and unintermined mans power supply, providing battery backeup for both the interface and the compoter would make it were syn-pristre.

Although the software as supplied in perfectly usable, it would benefit from some improvements, this will not be a problem for the person who wants to experiment anyway. Overall, a useful system if you are going to use it for more than just a straight burglar alarm.

Sentinel security & control interfece. 599 90 (complete with security hordware) 549.80 (interface & software only). Supplied by: Micro-Security, PO &ox (\$, Horvant, Horth POP 315, Tal. 0705 484718.

TOMMY'S TI

Tommy is Commodore User's resident know-all. Each month he burrows through a mour tain of readers' mail and emerges with a handful of choice queries. The result, before you is a wadge of priceless information and indispensable advice. There's even the add useful tio as well

Bear Tommy. I am the owner 🕋 of a Vie 20 and the Vie 1515 printer, both of which behave

Leet Christmas however I also bonght a Commodore 64 but not before asking whether If was compatible with the Vic 1515 Yes, I was assured, thera is no problem

When, however, I linked the 64 to the printer. I found that the printer worked all night, but only if I asked it to print the simplest of instructions. With anything complicated it stopped at a different point on each occasion. As the printer still worked all right with the Vic-20, I assumed that there was something wrong with the 64, and my dealer kindly changed it But the problem still persleted even with the new machina

Persistent engulries produced a magic phone number, which when I rang up I was told that the Vic 1515 is meant for the Vic-20 really. If I want to use to with the 64, before OPENing the logical file I must POKE \$3265.11 to invalidate the screen, and alter CLOSEing the logical file I must POKE 53265,27 to bring the aeres back egain. I have followed these instructions, and the printer has worked almost without problem

Sines then however I have scrutinised every item of literature I could find includes "Commodore User", but I have payer found this fastraction about POKEing Is there any reason for this - which means is there anything wrong with my equipment?

This is due to a timing problem on the 64 The Vrc-20 permherals, the 1540 and 1515 etc, all suffer from the same problem, the device deta out of step with the computer due to the increased work that the 64 has to do in keeping the screen upto-date. That is the reason the 'new' 1541 dask and 1525 printer were duced, they both have new ROMs which take account of this timing problem. Even they are not completely munuse, try using two 1541 disks together for example! Commodore offered a new ROM



1540 drive who wanted to use it make the memory available for with the 64. To my knowledge they have not produced one for the so a machine code program on the 1515 Turning the action off is not Spectrum is still imsted to 41 5K an elegant solution, but the only other one is to sell your 1515 and upgrade to a newer printer

Dear Tommy, I am very confused about an advert for the ZX Spectrum put in a Spaniar magazine In the advers It said "The Spectrum given 41.5K of usable memory, mor then costler computers such as the Commedore 64 or BBC model B So you can run bloner and better programs". I thought there was a mistake as the Commodore le SAK and the Spectrum is 48K. Piessa would you tell me if thus is correct? I think a lot of other people will

which computer to buy. This is a classic example of comparses telling people only half the story The advert is perfectly correct if you take the amount of memory available to Basic. The Spectrum has 41 5K while the Commodore 64 only has 38 SK. Thus is because there is a large area of memory reserved for cartndges and the operating system at: However this is not the whole story because you have to take mro account the sort of programs you are going to be runnand

be confused and won't know

For example, the 64 can have as much as 54K avariable for a machine code program, because the area reserved for the Basic

use. The Spectrum carrier do this In practice I doubt whether this

is really going to be a problem unless you are going to be running some large database programs where avadable memory starts to become suportani I suggest you should look at what you can afford. what software to available (does ti do what you want?), as it easy to use and are the add one available and reasonably proced. Come up with a shorther of computers and then on You will find this a much better method of deciding on a computer biggest bytel

Dear Tommy, Helpf I won a Vic-20 starter pack soma months ago in a commetities and ri has since developed a fault. As the unit le less than twelve months old, no problem you might think, but as I have no receipt none of the dealers neur me want to know an I rang Commodore but they say I need proof of purchase Catch

I heve now given up, I would like your advice on to the possible esuse and probable cost (I know :t'e a lot to eak but

I do have great faith in you). The feul: occured while running a small game during which time the program appeared to ceash locking up

the run/stop restors atc. All this time the TV proture was showing To clear the computer I switched off and on switching back on, the initial picture would not appear; the screen stave black and at the same time the CLR key le disabled completely The fuse inside the Vic appears to be ok an the neon lamp glows when I switch on Any ideas?

I am afraid your fault could be due to a number of things, some easy to trace and ruchfy and others much more difficult. To get it repaired through a Commodore dealer will probably cost around \$25 mace most dealers make a shipping/han dling charge of around £7-£10 Why don't you wrote to the corner of the competition and get them to send you a letter confirming when you won the name and then use that to try to get it repaired by Commodote Pashing that, there are a number of independent companies who repair computers. While I cannot recommend any particular one, since I haven't used them, Trident Enterprises adver tise in Commodore User and charge £12 80 + parts, their phone number 1s 0753 48785

Dear Tommy, Could you pleane answer the following questions? I'm thinking of buying an Epson RX 80 F/T printer to use with my Commodore 64, Do I need any additional hardware or software bealdes the printer

before I can use it? Secondly, do you consider the Epson RX-80 F/T to be good. for the price or have I made the wrong choice?

You will need a cable plus some form of interface to convert the Commodore output into the Centromes parallel interface format which the Epson printer uses This can be orther software interface which converts the User port mo a prerface which plugs into either the serial port (like a normal Commodore printer) or into the Userpost some even do conversione of the control characters to give readable strings metead of grantees characters



added and because they have not been fully tokenised, the speed of operation is not affected Abbreviations may also be used The main areas of enhancement are

HI-RES. SPRITES, TEXT GRAPHICS, UDG. SDUND, MACHINE CDDE AIDS. STRUCTURED PRDGRAMMING, I/D and more. For full spec, call

£57.50 mc VAT

Somus on PRESTEL * 2473222 # Telex #49462 VELFAC KUMA COMET KUMA TELECOM GOLD KUM 891

PAINTPIC

The complete colour drawing and painting application using multi-colour hit man. This outstanding program features

Pen. Brush and Text Modes: Curved Shapes: Straight Shapes: Pen and Brush Fills: Settable Colour; Horizontal, Vertical, Diagonal, By Dot, Brush Width, Character Moves; Paint Moves; Block Moves.

No extra hardware items are needed beyond the basic computer, tape drive and colour TV

Send for full brochure £19.95 mc VAT



PHONE NOW (073 57) 4335

OF SEND FOR DETAILS Mease tack bex required, and send covour to GUARR WAT Kuma Computers Ltd SAGE BOOM SHE presence Read, Pangher rks RG# 7JW ERSON HY 31

NEWSBAN

SPECTRUM

PRINTERS

ELECTRONIC MAIL

COMMODORE 64 SHARP PC 1500 SHARP 700

the Stack software interface to £90 the elements of an array that 'point for the Impex hardware interface to the strings. The following short Other interfaces include the Vic. renoram will demonstrate this sprint and Comprint at £50 and £62 method respectively. All of these come seek a costable cable, but if you true any others check to ensure it does

include a cable You will not go far wrong with an Enson printer While there are similar and possibly cheaper machines available. Epson have a reputation for reliability 1 use an Epson at home and at work prount said?

Dear Tonuny, Have you any ideas on a small program, that will give me a list of eleven numbers, at random, where none of the enwhers are the same in any one block of eleven?

I read with interest your tips on Commodore machines each month, my only comment being that there is not excust of

You need to declare an array of oleven elements and then store the tandom numbers as they are selected. It in then a simple matter of checking the numbers you have already got and resocting the new combar if it is the come. The follow ing short program will give you eleven random numbers between and 100 with no repeats (it will work equally well with numbers

10 DIM RN(11) 20 FOR 5=1 TO 11 30 N=D(T(100*RND(1)) + 1:

FLAG = 0 40 FOR R=1 TO A-1 50 IF RN(B)=N TEEN FFLAG=1: B=A: REM IF

REPEAT THEN SET FLAG AND END LOOP 60 NEXT B 70 IF FLAC=1 THEN 30: REM

SELECT NEW NUMBER IF REPEAT 80 RN(A)-N: NEXT A 90 PRINT"<CLR>

100 FOR A-1 TO 11: PRINT RNIA'S NEXT A

110 END

Dear Tomery, Can you explain how to do multiple sorts? For example, how to sort a group of approx 200 people into 6 ea) emories, and then re-sort each category into Alpha/Num order without mixing the eatesones up again? I hope you can reselve this GREEV

Multiple sorts are best done using pointers. This means that instead of changing the order of the alphabe

Prices range from about £24 for this strings, you change the order of

20 MEN - 10 PUM CAT(6,MAX), NAMES (20)

20 FOR 5-1 TO 6 FOR 8-0 TO MAY 30 CAT(A.B)-0 NEXT B.A. DEM CLEEN ALL

DI PMENTS OF APREX 40 FOR 8-1 TO 20 50 READ NAMES(A)

60 C=VAL (RICHTS (NAMES(A),1)): REM EIGHE ST END DETERMINES CATEGORY

20 IF CATIC O-MAY THEN PRINT "OVERFLOW IN CATEGORY"; C:GOTO 100

80 CAT(C.0) -- CAT(C.0)+1: REM INCR NO OF BOTNTERS HELD 90 CAT(C,CAT(C,0))=A 100 NEXT A

109 REM LINES 110 TO 160 ALLOWS YOU TO CHECK CATEGORIES ON SCREEN 110 INPITEWHICH CATEX

120 IF X<0 OR X>6 THEN END 130 FOR S-1 TO CAT(X 0) 140 PRINT NAMES(CAT(X.A))

150 NEXT 5 160 GOTO 110 200 DATA FRED1. GEORGES. ARTHURI, MIKEZ, SIJE4.

ANNS, WENDY4, KAY6. MARGE4 BILIE4 210 DATA BOBS, TOMS CHRISI, BERT2, JOHN2, MABLES, FLOS, IENNY4.

PAMS, JOSIES You now have six rows of numbers. each number referred to the corresponding string in NAMES. By petering to the array as NAMES (CATXXX)) you can now do a sort on any category, without mixing them up again, by changing the order of the numbers in the relevant row of CAT The Oth element of each row of CAT gives you the total number of elements in that natempry. If you wish to access the strings in a number of different or ders then just declare more arrays like CAT This will also be considerably faster than moving the strings about, since you will not suffer from the dreaded garbage col

> Send your queries to: Tommys Tips Commodore User. Priory Court

30-32 Farringd

CLASSIFIED

16K Vic-20 16K RAM pack introduction for Basic 1 £70 Games £20 Magazines books substrandition £70 and Payet

7HF (0782) 410628

Commodore 3032, 3040 dual
disk und 3522 proteir All year

Vrc-20 unexpanded with C2N cosselve into ta Basic Part I books inagazines and topes. \$130 Apply Vogt 10 Hurl Road Poole Darsel BHTS 3GD.

Printer. Shinwa CP-80 senal dat matrix. Excellent NLG unarcates/ grophics 80 cps bythereonat for any micro/mini computer 5 manths old Won another printer in competition New candition £170. Brookwood 87774

Drsks downunder – C64 programs to swap. Write to: M. Woleck. 8 Delbridge Street. North Fritroy. 3068 Melbourne. Australia

WHICH COMMODORFROOK?

Free book catalogues at independently selected. Commodare books Subscriptions bring latest selections and sowings. Send for FREE catalogues to



Vic., C2H, 16K switchable RAM 17 games 8asic Part 1 Boxed os new condition £120 Fhone Kevin, Chattont St Giles 4880 (6

At least Economical, br-dir RS232 odabiter for Cammadare, 64 Comes complete with a cobile 8: operating instructions. Specify make or famale D cannestor, pinter or modern connection hace pust \$2.99 for UNIT PRI Mail order only to Fila Computers. I Michael Road Seven Kings littled. Essex IGS ROW Tell # 500 nexts.

CBM64 programs to swap Only an disk Over 1380 programs Please send list to Stafan Berglund Sparregatan 15 39230 Ratter Sweden

32K Via user group where are you? J Calhrs, 92 Grove Hill Landon E18 D1-989 1277 All 1541 users should for Club64 the international user group For details of our excellent public domain software theory contact Brendon Cantoy, 85 Lingue Deurschnitte Brand Duble.

Vic-20/CBM64 Software Rige Na membarish feel Guality lities (eg Skyhawk Jelpac Flight 015) tom 50p per

week Aiready 500 delighted members Join them now All games originals Send 2 x 17p stamps for your Hreid (please state which machine) (VSH(CU) 242 Ranson Road

Vic-20 Word Processor. Victor Powelful ward processor Facilities micuole Large teat buffer auto centre teat vanable tab insert amend dielete copy move teat ward count right justify etc. Fully mishu darven trampratiensive easy to use instructions. Needs: +15% expansion min. Great value.

Vic.20 Dato File. Taken the place at one rad make place at one rad make place in order to the place to make the place to make the place to the place

Attention all Vie-20 and CBM64 users Whether you're a dealer user group individual or software storay do you really know what commends software there is of the Vic and the CBM64F Well Its token us ages to come use with the document of covers games, utilities, education books and bushes software it gives descrations, noticiaruse and

descriptions, nataware prices independent ratings and suppliers with addresses etc. For delivery asap send cheque/PO for \$5.00 UK or \$6.00 overseas to Cements Information, Box 0.15

For sale. Vic-20 carindges.
Adventureland and Voodoo
Carlie S5 each or SP both Will
swap either for Prote Cove
Contact Darron at 59
Kitkleatham Lone Redcar,
Cleveland

We-20 for sale Vic 20 C2N counterfamiliar Solivante and magazines Quick sale \$90 C8M books Mochine Code Moder \$5.0 The Working C8M64, \$4.50. The C8M64 Program Book \$3.50 Games for the C8M64 \$1.20 Tel Northwich 782475

CBM64 possible pengal wanted for a 12 year old boy 1 have more than 150 programs to swap Send your list to Gele Danielsen Asveier 20, 4620 Vagsbygd, Norway

Solutions to Scott Adams odimintures (1-5): \$1 each Senal see to Martin Wirght "Almo" Cilcenan Lampeler, Dyfed, Wales SA48 88H Tel 6570 470362 Name solution recurred

Swap. Hackers from the land down under want to swap sathware and into Hundreds of gloot titles. Send list to Nigel Rass PO Bax 219 Mariley 6062 Perth. WA. Australia

CBM64 owner has more than 1200 progs and wants to swap them. Please send your list only of high qualify software on disk to: Leo Reser, Via Pffeth 27, 1 10143 Tonno tlaby.

Home Accounts, Pal your house in arcfair Probably this beet home market Probably this beet home commissional coverage of bank occounts, aned cottal, Hi etc. Insult accusacy check. Plaseds acathlow for any pendic check and Available to CRMAC VE. 20 and Commodate 16 58 45 or five citals from Dissus Software Freepast Windmid Hit Brethom TaS 987 et al 180 46 55532

Vic-20 & CBM6-4 software for sale All originals, good piaces, mastly UK, some USA. For large graded lists please send sale to John Keogh. 30 Highwood. Avenue Finchley Landon N12.

Vic-20, C2N recorder, Qualishot I plus Commodore systlatis, Sciamble, Galaxims, plus mare games 38 Supersepander, cathridge game book (Learn Computer Programming)) manuals dustoover 5270 Phone 81-4217/877 offer Som

Phone 01-471 7877 offer 5pm

Vic-20 only \$50 including optimizes and monuois Venatile 16K RAMpack \$15 bighten

Unique gumes and brinder should guide from the following shoul

Gasiti-64, graphics/sprites musical package for CSM64 Unwanted giff Many new commands sove pictures/tunes to tape Send cheque or PO, \$10 David Innes 54 Sandhust Road, funbridge Wells Kent Vic-20 casseffe C2N, Super Expander 16K Introduction to Basic 2, S50 worth software books on grophics etc. All £150 N Gillon 123 Nicholson Street Edmburgh EH8 9ER Tell 031 667 8363

Yog Limited, a strategy game for Commodari & Pou control a yoghut making campany Features sprites, sound and furbo load, only \$2.50. Contact Ian. 48. Buckingnatim Road. Shoreham, Sussex.

MPS 801 printer brand new unused unwanted, quick sale 950 and 81 Harrow Drive, Falmanton N9 9EQ 01-807 1930 evenings

Vic-20, C2N, S40; Stack Light Rife 3 games, £15 Stack Matherboard £15 Programmer's Ad Corticige £10 Intro to Basic 1, £7 Programmer's Reterence Guide \$5 Phone 0405 43:13

Vic-20 plus 16K, C2N cossette unt and extensive software including four Liamatoff titles one year old excellent condition can be sold separately £65 Interested? Bring Beaconstield Buchs (04946) 4530

CBM64 software to swap, many titles including Americans Contact Garry on BS1 487 3262 or 22 Daunstey Mews, Bellevole, Dverpool L25 2TG Especially

CEM64 software to exchange molucing many American titles but only Most interested in adventure games. Send your let to 0 Baldomera Ryffstrase 21, 4054 Braul Sustandard

Vic-20 plus C2H cassette deck, Intro to Basic 1, many garnes based, £65 and Tel Brentwood (19277) 218602

Vis-20 16K BAM four contridges inducting Gorf Niverty original games including Flight Path 737, Jungeans, Dark Dungeans, all by Arring and others produced by Hem 5ell für \$12,000 Phone Countrol 452 after 6pm and ask for Ican.

ewinder superesponder)
178x (40 piess forwymich ponifinal)
ponifinal) crocle elipse, splot,
integlie squere jeythok functions
store drowings on tope 1520
printer and in memory (164)
Tope with machinecode routine,
dema programs, sample
drowings/maps, plus instructions
for \$2.50 from A Blomberg 134
Aldebury Road 1/facter/head 3.6,
74E.

Ad-Index

Adamsoft	107	Level 9	68
Anger	89	Logic 3	35
Audiogenic	CBC	Melbourne House	42 & 43
BSF	41, 84	Micro de bug Consultancy	102
Beyond	81, 97	Microgen	26
Brother	IFC	Micromega	10
Bubble Bus	95	Micropet	74, 75, 78
Calco Software	88, 102	Midland Computer Library	102
Cheetah Marketing	5	Mirrorsoft	3
Chromasonic Electronics	73	MPS	86
Consolidated Software	9	Munday & Roberts	86
Computerama	83	Masicalc	95, 101, 102
Creative Sparks	12, 33	New Generation Software	30, 31, 47
C&VG Book	34	Ocean Software	101
C & VG	97	Oxford Computer Systems	51
Digital Intergration	27	Paradox	63, 64, 85, 66
Doctor Soft	36	Precision Software	106
E & CM	82	Sample Software	101
Educational Computing	82	Software Library	B6
Electronic Aids	89	Solar Software	25
Evesham Micros	107	Sophisticated Games	34
First Publishing	49	Stack	90, 91
Hago Products	19	Statesoft	4
Handic	78 & 79	Stanechip Electrorises	67
Impex Designs	95	66 Pins	88
Infrascope	89	Taskset	3TBC
Interface	105	The Six Four Supplies Company	14
J & J Gilmour	101	The 64 Software Centre	50
Jansen Electronics	95	Ultimate	92
Jetsoft	51	Umsoft	98
John Wiley	18	US Gold	56, 57
K-Tel	17	Which Micro Book	34
Kuma Computers	112	Whitby Computers	46
Learning to Cope	97	Zeomseft	86



Commodore User a published twelve times a year by BMAP Burness and

Subscriptions and Back Issues are handled by BKT Subscription Services. Annual subscription (LR) \$1200 (Ero) \$PL 1700 (Europe) \$1800, (Rest of

Printed by Gernod & Lotthouse Ltd, Crawley, Photosetting by PDQ, Landon N13, Inlephane 01 444 0359, Reproduction by Elan Little London EC2 Distributed by Associated Newspapers. Material is accepted on an 'all rights' basis unless atherwise agreed. Enclase SAE If you want the return of original manuscripts and

photographs. an independenced in dry form without the prior consent is writing of the publisher other than short empty and expendenced in dry form without the prior consent is writing of the publisher other than short empty qualitat for the publisher of menes and duy created. The publisher do not necessarily agree with the views depressed by contributors and assure no responsibility for ends in reproduction or interpretation in this subject matter of this magazine or any results along therebox.



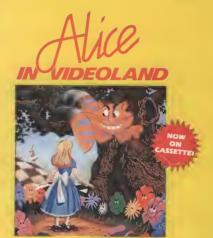


CAM



Cor-modore G1

£9.95



PURE MAGIC!

Join Alice in her Journey through Videoland - an enchanted place populated by strange creatures such as bread-andbutterflies and pipe smoking caterpillars, where little girls change size and flamingos turn into croquet mallets!

Alke in Widesland is a resolutionary new concept in entertainment for the Commodorie & I, incorporating some of the finest graphics ever seen on any home computer, accompanied by a charming musical score. There are four different game sceres invoked, and your performance in earlier ones will affect your ability to get through later ones and determine your eventual tools score.

Scene One - Sturning bitle page graphics give way to the first game scene as Alice falls into the rabbit's warren. Score points for collecting the objects to be found there - including keys to open doors, bottles to make her smaller, cakes to make her bigger!

Scene Two - Outrinte gardenthe Cheshmical bolds on as Alexinees the pre-anniving categoliar. Help he to calch he trendal and butterfiles and the tools completione like shall change into the balls such in the cropset game in the last scene Scene Turse - Alac is a pawn in the ches game where her opponents are the Jabbenoody and Twocoledies help her across the board by protecting net with your Viders (morbid).

Scene Four - The most bizarre croquet game everl Help Alice hit the balls through the playing-card-soldier hoops before the Queen of Hearts stomps on them!

Alice in Videoland is available for the Commodore 64 on disk - £12.95, and now on cassette - £8.95. Alice in Videoland features graphics created with the Koala Pad

